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November 25, 1998

IT-MC-CK05-0070
Project No. 774645

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Mobile District
Attn: CESAM-EN-GE (Pope)
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Contract: Contract No. DACA21-96-0018/CK05
Ft. McClellan, Alabama

Subject: Final Site-Specific Work Plans for Ft. McClellan

Dear Mr. Pope:

I am enclosing three copies of the final work plans for package 9 for your records. These plans incorporate the review comments we discussed and resolved during our October meeting at Orange Beach. This package describes the activities we will conduct at the Motor Pool Area 1300 (EBS Parcel 143), the Washrack Building 1224 (EBS Parcel 168), the Small Weapons Cleaning and Storage Compound Building 1378 (EBS Parcel 174), former Motor Pool Area 1000 (EBS Parcel 150), the UST Gym Pool Building 1012 (EBS Parcel 13), and the former Gas Station Area 1000 (EBS Parcel 139).

I have distributed copies of this document according to the distribution list indicated below. If you have questions, or need further information, please contact me at (303) 793-5250.

Sincerely,

A handwritten signature in cursive script that reads 'Jeanne Yacoub'.

Jeanne A. Yacoub, P.E.
Project Manager

Attachments

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**Final
Site Investigations
Site-Specific Field Sampling Plan and
Site-Specific Safety and Health Plan Attachments
Motor Pool Area 1300, Parcel 143(7)
Washrack, Building 1224, Parcel 168(7)
Small Weapons Cleaning & Storage Compound,
Building 1378, Parcel 174(7)
Former Motor Pool Area 1000, Parcels 150(7),
13(7), and 139(7)**

**Fort McClellan
Calhoun County, Alabama**

**Delivery Order CK005
Contract No. DACA21-96-D-0018
IT Project No. 774645**

November 1998

Revision 1

Site-Specific Field Sampling Plans

Motor Pool Area 1300, Parcel 143(7)

Washrack, Building 1224, Parcel 168(7)

Small Weapons Cleaning & Storage Compound, Bldg. 1378, Parcel 174(7)

Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7)

Site Investigation
Final
Site-Specific Field Sampling Plan Attachment
for the Motor Pool Area 1300, Parcel 143(7)

Fort McClellan
Calhoun County, Alabama

Prepared for:

U.S. Army Corps of Engineers, Mobile District
109 St. Joseph Street
Mobile, Alabama 36602

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312 Directors Drive
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Delivery Order CK005
Contract No. DACA21-96-D-0018
IT Project No. 774645

November 1998

Revision 1

Table of Contents

	<i>Page</i>
List of Tables	iii
List of Figures	iii
List of Acronyms.....	iv
Executive Summary	ES-1
1.0 Project Description	1-1
1.1 Introduction	1-1
1.2 Site Description	1-1
1.3 Scope of Work.....	1-2
2.0 Summary of Existing Environmental Studies	2-1
3.0 Site-Specific Data Quality Objectives	3-1
3.1 Overview	3-1
3.2 Data Users and Available Data.....	3-1
3.3 Conceptual Site Exposure Model	3-2
3.4 Decision-Making Process, Data Uses, and Needs	3-3
3.4.1 Risk Evaluation	3-3
3.4.2 Data Types and Quality	3-3
3.4.3 Precision, Accuracy, and Completeness	3-3
4.0 Field Activities	4-1
4.1 Utility Clearances	4-1
4.2 Environmental Sampling	4-1
4.2.1 Surface Soil Sampling	4-1
4.2.1.1 Sample Locations and Rationale	4-1
4.2.1.2 Sample Collection	4-1
4.2.2 Subsurface Soil Sampling.....	4-2
4.2.2.1 Sample Locations and Rationale	4-2
4.2.2.2 Sample Collection	4-2
4.2.3 Groundwater Sampling.....	4-2
4.2.3.1 Sample Locations and Rationale	4-2
4.2.3.2 Sample Collection	4-2
4.2.4 Depositional Soil Sampling.....	4-3
4.2.4.1 Sample Locations and Rationale	4-3
4.2.4.2 Sample Collection	4-3

Table of Contents (Continued)_____

	<i>Page</i>
4.3 Decontamination Requirements	4-3
4.4 Surveying of Sample Locations.....	4-4
4.5 Analytical Program.....	4-4
4.6 Sample Preservation, Packaging, and Shipping	4-5
4.7 Investigation-Derived Waste Management	4-5
4.8 Site-Specific Safety and Health.....	4-5
5.0 Project Schedule	5-1
6.0 References	6-1

List of Tables

Number	Title	Follows Page
3-1	Summary of Data Quality Objectives	3-1
4-1	Sample Locations and Rationale	4-1
4-2	Surface, Subsurface, and Depositional Soil Sample Designations and QA/QC Sample Quantities	4-1
4-3	Groundwater Sample Designations and QA/QC Sample Quantities	4-3
4-4	Analytical Samples	4-4

List of Figures

Number	Title	Follows Page
1-1	Site Location Map, Motor Pool Area 1300, Parcel 143(7)	1-1
1-2	Site Map, Motor Pool Area 1300, Parcel 143(7)	1-1
3-1	Human Health Conceptual Site Exposure Model for Motor Pool Area 1300, Parcel 143(7)	3-2
4-1	Proposed Sample Locations, Motor Pool Area 1300, Parcel 143(7)	4-1

List of Acronyms

ADEM	Alabama Department of Environmental Management
CLP	Contract Laboratory Program
CERFA	Community Environmental Response Facilitation Act
CESAS	Corps of Engineers South Atlantic Savannah
COPC	chemicals of potential concern
CSEM	conceptual site exposure model
DOD	U.S. Department of Defense
DQO	data quality objective
EBS	environmental baseline survey
EPA	U.S. Environmental Protection Agency
ESE	Environmental Science and Engineering, Inc.
FTMC	Fort McClellan
GPS	global positioning system
IDW	investigation-derived waste
IT	IT Corporation
PID	photoionization detector
PSSC	potential site-specific chemical
QA/QC	quality assurance/quality control
QAP	installation-wide quality assurance plan
SAP	installation-wide sampling and analysis plan
SFSP	site-specific field sampling plan
SHP	installation-wide safety and health plan
SI	site investigation
SSHP	site-specific safety and health plan
SVOC	semivolatile organic compound
TAL	target analyte list
TCL	target compound list
USACE	U.S. Army Corps of Engineers
VOC	volatile organic compound
WP	installation-wide work plan

Executive Summary

In accordance with Contract No. DACA21-96-D-0018, Delivery Order CK005, IT Corporation (IT) will conduct site investigation activities at the Motor Pool Area 1300, Parcel 143(7) to determine the presence or absence of site-specific chemicals. The purpose of this site-specific field sampling plan (SFSP) is to provide technical guidance for sampling activities at Motor Pool Area 1300.

Motor Pool Area 1300 is an active motor pool maintained by the Alabama National Guard. The area consists of a parking/staging area for military vehicles and five standing buildings (Buildings 1331, 1367, 1376, 1377, and 1385). Building 1367, located on the central eastern portion of the motor pool, is a workshop area for the Alabama National Guard used for carpentry work and storage of lawn mowers and weed eaters. Military vehicles are parked to the north and northeast of Building 1385. Built in 1942, Building 1385 is a general purpose storage shed, storing fluorescent tubes. Building 1377, built in 1980, consists of four cargo shipment containers placed on a concrete pad located to the south of the Building 1367. Building 1377 is used to store weed eaters, lawn mowers, and roofing tar. Buildings 1331 and 1376 are located to the west and south of Building 1377, respectively. Building 1331, built in 1941, is a company headquarters functioning as an administrative building. Building 1376 was constructed in 1980 as a general purpose storage shed for kerosene, paint, concrete sealer, isopropyl alcohol, breakfree, and fuel for lawn mowers and weed eaters. Two concrete slabs and a storage bin are located to the east and north east of Building 1377. The slabs and bin were used for storage and coal burning; however, they are currently no longer in use. The area between the buildings is predominantly covered with grass except for the unimproved road and parking area, which are covered with gravel.

Potential contaminant sources at the site include waste oil and petroleum products resulting from vehicle parking/staging and storage activities. IT will collect seven surface soil samples, seven subsurface soil samples, five groundwater samples and one depositional soil sample at this site. Chemical analyses of the samples collected during the field program will include volatile organic compounds, semivolatile organic compounds, and metals. Results from these analyses will be compared with site-specific screening levels specified in the installation wide work plan (WP), and regulatory agency guidelines.

This site-specific field sampling plan (SFSP) attachment to the installation-wide sampling and analysis plan (SAP) (IT, 1998a) for Motor Pool Area 1300 will be used in conjunction with the

site-specific safety and health plan (SSHP), and the installation-wide WP (IT, 1998b) and SAP. The SAP includes the installation-wide safety and health plan, waste management plan and quality assurance plan. Site-specific hazard analyses are included in the SSHP.

1.0 Project Description

1.1 Introduction

The U.S. Army is conducting studies of the environmental impact of suspected contaminants at Fort McClellan (FTMC) in Calhoun County, Alabama, under the management of the U.S. Army Corps of Engineers (USACE)-Mobile District. The USACE has contracted IT Corporation (IT) to provide environmental services for the site investigation (SI) of Motor Pool Area 1300, Parcel 143(7), under Delivery Order CK005, Contract No. DACA21-96-D-0018.

This site-specific field sampling plan (SFSP) attachment to the installation-wide sampling and analysis plan (SAP) (IT, 1998a) for FTMC has been prepared to provide technical guidance for sample collection and analysis at Motor Pool Area 1300, Parcel 143(7) (Figure 1-1). The SFSP will be used in conjunction with the site-specific safety and health plan (SSHP) developed for Motor Pool Area 1300 and the installation-wide work plan (WP) (IT, 1998b) and SAP. The SAP includes the installation-wide safety and health plan (SHP), quality assurance plan (QAP), and waste management plan.

1.2 Site Description

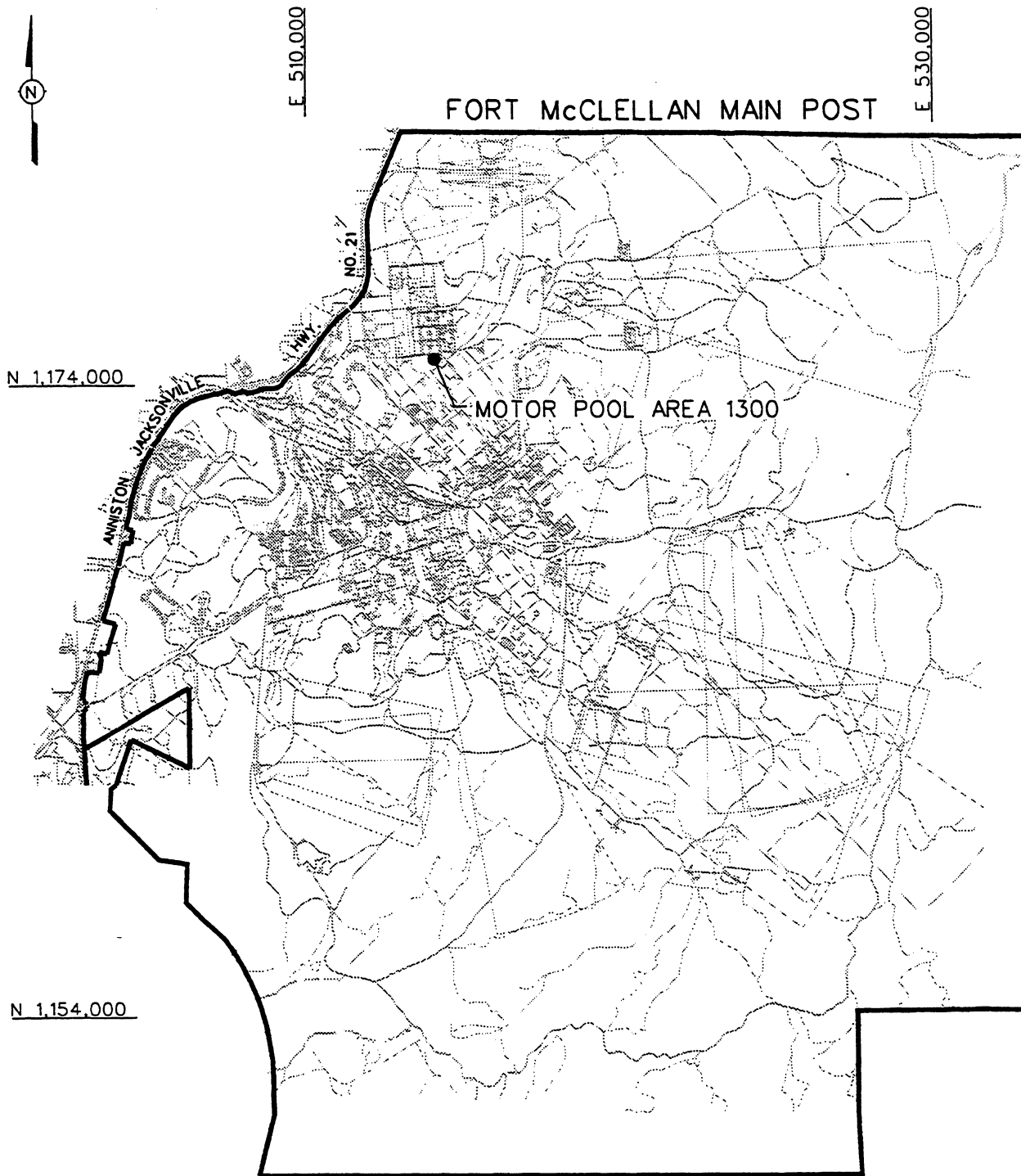
Motor Pool Area 1300, Parcel 143(7) is located in the northwest part of the Main Post, west of 2nd Avenue and south of 9th Street (Figure 1-2). The study area is approximately 1 acre. The motor pool is currently active and is maintained by the Alabama National Guard.

The area consists of a parking/staging area for military vehicles and five standing buildings (Buildings 1331, 1367, 1376, 1377, and 1385). Building 1367, located on the central eastern portion of the motor pool, is a workshop area for the Alabama National Guard used for carpentry work and storage of lawn mowers and weed eaters. Military vehicles are parked to the north and northeast of Building 1385. Built in 1942, Building 1385 is a general purpose storage shed, storing fluorescent tubes. Building 1377, built in 1980, consists of four cargo shipment containers placed on a concrete pad located to the south of the Building 1367. Building 1377 is used to store weed eaters, lawn mowers, and roofing tar. Building 1331 and 1376 are located to the west and south of Building 1377, respectively. Building 1331, built in 1941, is a company headquarters functioning as an administrative building. Building 1376 was constructed in 1980 as a general purpose storage shed for kerosene, paint, concrete sealer, isopropyl alcohol, breakfree, and fuel for lawn mowers and weed eaters. Two concrete slabs and a storage bin are located to the east and north east of Building 1377. The slabs and bin were used for storage and

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FORT McCLELLAN BOUNDARY

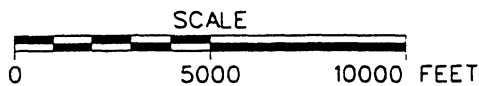
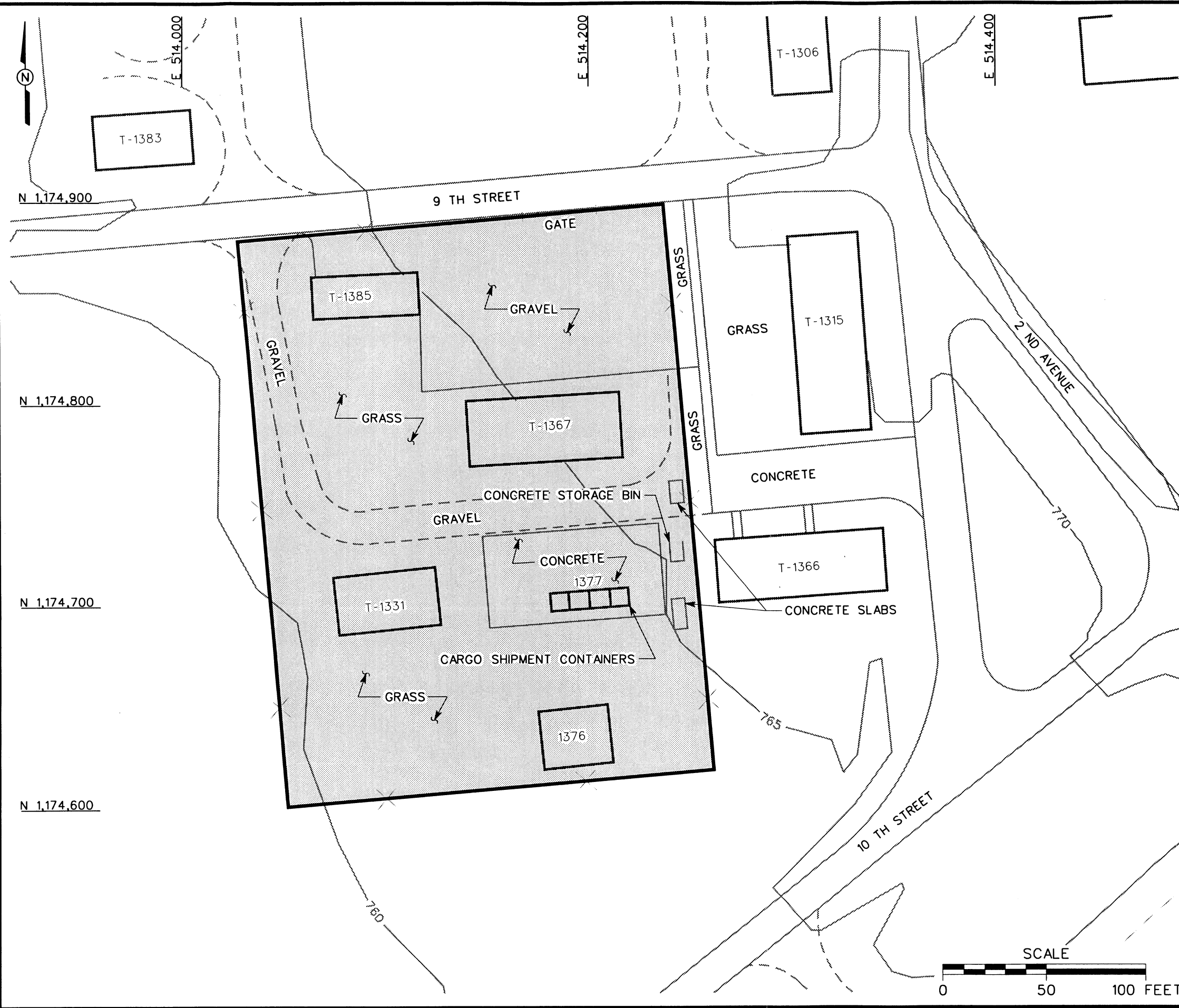


FIGURE 1-1 SITE LOCATION MAP MOTOR POOL AREA 1300 PARCEL 143(7)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018



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LEGEND

- UNIMPROVED ROADS AND PARKING
- PAVED ROADS AND PARKING
- BUILDING
- TOPOGRAPHIC CONTOURS
- PARCEL BOUNDARY
- FENCE

FIGURE 1-2
SITE MAP
MOTOR POOL AREA 1300
PARCEL 143(7)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

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coal burning; however, they are currently no longer in use. The area between the buildings is predominantly covered with grass except for the unimproved road and parking area, which are covered with gravel.

Although the EBS (ESE, 1998) reported a washrack/oil/water separator associated with the site, recent phone communication with ESE indicated the EBS was in error. Historical records of washrack/oil/water separators at the installation and review of layout maps indicated Motor Pool Area 1300 did not contain a washrack or oil/water separator. Additionally, a washrack cannot be seen on any of the aerial photographs reviewed. During IT's site visit to the facility, a washrack was not observed.

An open area grown with vegetation is located to the west and south of the site. Buildings 1315 and 1366 located to the east are company headquarters administrative buildings managed by the Alabama National Guard. Buildings 1306 and 1383 located to the north of the site are annual training enlisted barracks managed by the Alabama National Guard.

Site elevation is approximately 765 feet. The surface of the land slopes gently to the southwest. The soils found at this site fall into the Rarden series. The mapping unit consists of shallow, 2- to 4-inch-thick, yellowish-red to dark-brown silty clay loam having mild slopes easily susceptible to erosion. Runoff is high and shows shallow gullies (U.S. Department of Agriculture, 1961).

Site specific geology and hydrogeology are currently not available, but data will be gathered during SI activities.

1.3 Scope of Work

The scope of work for activities associated with the SI at the Motor Pool Area 1300 site, specified by the statement of work (USACE, 1998), includes the following tasks:

- Develop the SFSP attachment.
- Develop the SSHP attachment.
- Collect seven surface soil samples, seven subsurface soil samples, five groundwater samples, and one depositional soil sample to determine whether site-specific chemicals are present at the Motor Pool Area 1300 site and to provide data to determine any future planned corrective measures and closure activities.

At completion of the field activities and sample analyses, draft and final SI summary reports will be prepared to evaluate the absence or presence of site-specific chemicals and to recommend further actions if appropriate.

2.0 Summary of Existing Environmental Studies

ESE conducted an EBS to document current environmental conditions of all FTMC property (ESE, 1998). The study identified sites that, based on available information, have no history of contamination and comply with U.S. Department of Defense (DOD) guidance on fast track cleanup at closing installations. The EBS also provides a baseline picture of FTMC properties by identifying and categorizing the properties by seven criteria.

1. Areas where no storage, release, or disposal (including migration) has occurred.
2. Areas where only storage has occurred.
3. Areas of contamination below action levels.
4. Areas where all necessary remedial actions have been taken.
5. Areas of known contamination with removal and/or remedial action underway.
6. Areas of known contamination where required response actions have not been taken.
7. Areas that are not evaluated or require further evaluation.

The EBS was conducted in accordance with the CERFA (CERFA-Public Law 102-426) protocols and DOD policy regarding contamination assessment. Record searches and reviews were performed on all reasonably available documents from FTMC, Alabama Department of Environmental Management (ADEM), U.S. Environmental Protection Agency (EPA) Region IV, and Calhoun County, as well as a database search of Comprehensive Environmental Response, Compensation, and Liability Act-regulated substances, petroleum products, and Resource Conservation and Recovery Act-regulated facilities. Available historic maps and aerial photographs were reviewed to document historic land uses. Personal and telephone interviews of past and present FTMC employees and military personnel were conducted. In addition, visual site inspections were conducted to verify conditions of specific property parcels. Motor Pool Area 1300 was identified as a Category 7 CERFA parcel, where previous investigations have not been conducted and further evaluation was needed.

3.0 Site-Specific Data Quality Objectives

3.1 Overview

The data quality objectives (DQO) process is followed to establish data requirements. This process ensures that the proper quantity and quality of data are generated to support the decision-making process associated with the action selection for the Motor Pool Area 1300 site. This section incorporates the components of the DQO process described in the EPA publication EPA 540-R-93-071, *Data Quality Objectives Process for Superfund, Interim Final Guidance* (EPA, 1993). The DQO process as applied to the Motor Pool Area 1300 site is described in more detail in Section 4.3 of the WP (IT, 1998b). Table 3-1 provides a summary of the factors used to determine the appropriate quantity of samples, and the procedures necessary to meet the objectives of the SI and establish a basis for future action at this site.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Chapter 4.0 in this SFSP and Table 6-1 in the QAP. Data will be reported and evaluated in accordance with Corps of Engineers South Atlantic Savannah (CESAS) Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). Chemical data will be reported via hard copy data packages by the laboratory using Contract Laboratory Program (CLP)-like forms. These packages will be validated in accordance with EPA National Functional Guidelines by Level III criteria.

3.2 Data Users and Available Data

The intended data users and available data related to the SI at the Motor Pool Area 1300 site, presented in Table 3-1, have been used to formulate a conceptual site exposure model (CSEM) presented in Section 3.3. This CSEM was developed to support the preparation of this SFSP, which is necessary to meet the objectives of these activities and to establish a basis for future action at the site. The data users for the data and information generated during field activities are primarily the EPA, USACE, ADEM, FTMC, and the USACE supporting contractors. This SFSP, along with the necessary companion documents, has been designed to provide the regulatory agencies with sufficient detail to reach a determination as to the adequacy of the scope of work. The program has also been designed to provide the level of defensible data and information required to confirm or rule out the existence of residual potential site-specific chemical (PSSC) in the site media.

Table 3-1

**Summary of Data Quality Objectives
Motor Pool Area 1300, Parcel 143(7)
Fort McClellan, Calhoun County, Alabama**

Potential Data Users	Available Data	Conceptual Site Model	Media of Concern	Data Uses and Objectives	Data Types	Analytical Level	Data Quantity
EPA, ADEM USACE, DOD FTMC, IT Corporation Other Contractors Possible future land users	None	<u>Contaminant Source</u> Motor Pool Facility <u>Migration Pathways</u> Infiltration to subsurface soil. Infiltration and leaching to groundwater. Dust emissions and volatilization to air. <u>Potential Receptors</u> Groundskeeper (current and future) Construction worker (future) Resident (future) Recreational site users (future) <u>PSSCs</u> Fuels and fuel components Waste oils Organic compounds Possible metals	Surface Soil	SI to determine the presence or absence of PSSCs in the site media Definitive quality data for future decision making	Surface soil TCL VOCs, TCL SVOCs, TAL Metals	Definitive + CESAS Level B data packages	7 direct-push soil samples + QC
			Subsurface Soil		Subsurface soil TCL VOCs, TCL SVOCs, TAL Metals	Definitive + CESAS Level B data packages	7 direct-push soil samples + QC
			Groundwater		Groundwater TCL VOCs, TCL SVOCs, TAL Metals	Definitive + CESAS Level B data packages	5 direct-push groundwater samples + QC
			Depositional Soil		Depositional Soil TCL VOCs, TCL SVOCs, TAL Metals	Definitive + CESAS Level B data packages	1 depositional soil sample + QC

ADEM - Alabama Department of Environmental Management.
 CESAS - Corps of Engineers South Atlantic Savannah.
 DOD - U.S. Department of Defense.
 EPA - U.S. Environmental Protection Agency.
 FTMC - Fort McClellan.
 PSSC - Potential site-specific chemical.
 QC - Quality control.

VOC - Volatile organic compound.
 SI - Site investigation.
 SVOC - Semivolatile organic compound.
 TAL - Target analyte list.
 TCL - Target compound list.
 USACE - U.S. Army Corps of Engineers.

3.3 Conceptual Site Exposure Model

The CSEM provides the basis for identifying and evaluating the potential risks to human health in the risk assessment. The CSEM includes the receptors appropriate to all plausible scenarios, and the potential exposure pathways. Graphically presenting all possible pathways by which a potential receptor may be exposed, including all sources, release and transport pathways, and exposure routes, facilitates consistent and comprehensive evaluation of risk to human health, and helps to ensure that potential pathways are not overlooked. The elements necessary to construct a complete exposure pathway and develop the CSEM include:

- Source (i.e., contaminated environmental) media
- Contaminant release mechanisms
- Contaminant transport pathways
- Receptors
- Exposure pathways.

Contaminant release mechanisms and transport pathways are not relevant for direct receptor contact with a contaminated source medium.

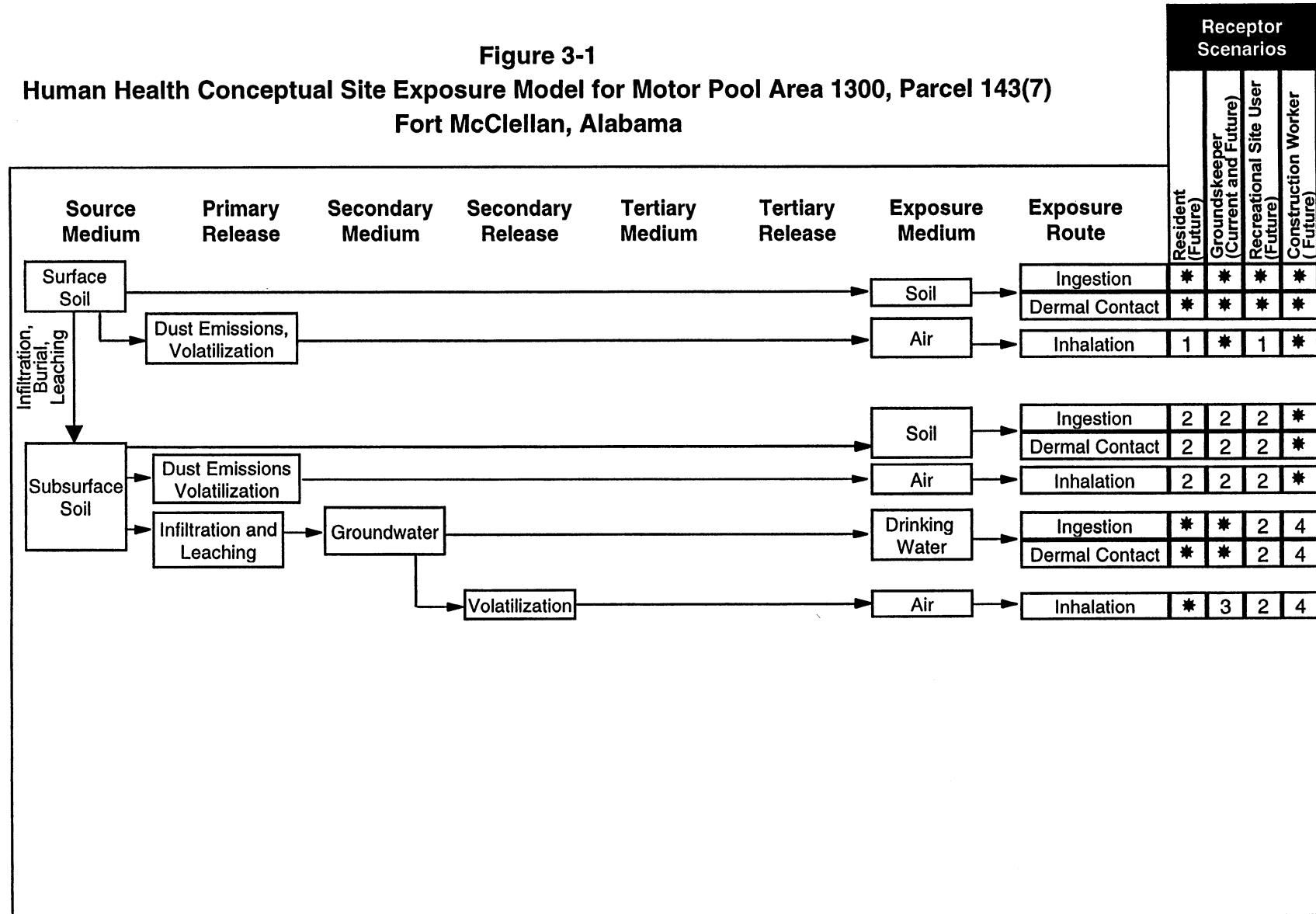
Chemicals of potential concern (COPC) at Motor Pool Area 1300, Parcel 143(7) include fuels and fuel components, waste oils, organic chemicals associated with vehicular maintenance, and possibly metals. Primary contaminant releases probably were (and possibly continue) to surface and subsurface soil. Potential contaminant transport pathways include infiltration to subsurface soil, infiltration and leaching to groundwater, dust emissions, and volatilization to air. The grass, pavement, and other materials covering surface soil at this site greatly reduce the significance of potential risk from dust emissions and volatilization of contaminants.

Motor Pool Area 1300 is presently used for industrial purposes. Currently, the only plausible receptor is the groundskeeper.

Future use of this site is expected to be industrial (FTMC, 1997). Some of the area may also be released unused. The most conservative assumption is that residential development could occur at some time in the future. Plausible receptors under the future site-use scenario(s) include the recreational site user, groundskeeper, construction worker, and resident.

The contaminant release and transport mechanisms, source and exposure media, receptors and exposure pathways are summarized in Figure 3-1 and Table 3-1.

Figure 3-1
Human Health Conceptual Site Exposure Model for Motor Pool Area 1300, Parcel 143(7)
Fort McClellan, Alabama



* = Complete exposure pathway quantified in SSSL development.

1 = Volatilization from undisturbed surface soil deemed insignificant; soil is likely to be paved or vegetated, reducing dust emissions to insignificant levels; inhalation pathway not quantified.

2 = Incomplete exposure pathway.

3 = Although theoretically complete, this pathway is judged to be insignificant.

4 = Although theoretically complete, these pathways are not quantified for the construction worker because SSSLs developed for the groundskeeper would be at least as restrictive.

3.4 Decision-Making Process, Data Uses, and Needs

The decision-making process consists of a seven-step process that is presented in detail in Section 4.3 of the WP and will be followed during the SI at the Motor Pool Area 1300 site. Data uses and needs are summarized in Table 3-1.

3.4.1 Risk Evaluation

Confirmation of contamination at Motor Pool Area 1300 will be based on comparing detected site COPC to site-specific screening levels developed in the WP. EPA definitive data with CESAS Level B data packages will be used to achieve detection limits sufficient to determine whether or not the established guidance criteria are exceeded in site media. Definitive data will be adequate for confirming the presence of site contamination and for supporting a feasibility study and risk assessment.

Assessment of potential ecological risk associated with sites or parcels (e.g., surface water and sediment sampling, specific ecological assessment methods, etc.) will be addressed in the installation-wide work plan.

3.4.2 Data Types and Quality

Surface and subsurface soil, groundwater, and depositional soil will be sampled and analyzed to meet the objectives of the SI at the Motor Pool Area 1300 site. Quality assurance/quality control (QA/QC) samples will be collected for all sample types as described in Chapter 4.0 of this SFSP.

Samples will be analyzed by EPA-approved SW-846 methods, where available; comply with EPA definitive data requirements; and be reported using hard copy data packages. In addition to meeting the quality needs of this SI, data analyzed at this level of quality are appropriate for all phases of site characterization, remedial investigation, and risk assessment.

3.4.3 Precision, Accuracy, and Completeness

Laboratory requirements of precision, accuracy, and completeness for this SI are provided in Chapter 9.0 of the QAP.

4.0 Field Activities

4.1 Utility Clearances

Prior to performing any intrusive sampling, a utility clearance will be performed at all locations where soil and groundwater samples will be collected, using the procedure outlined in Section 4.2.6 of the SAP (IT, 1998a). The site manager will mark the proposed locations with stakes, coordinate with the installation to clear the proposed locations for utilities, and obtain digging permits. Once the locations are cleared, the stakes will be labeled as cleared.

4.2 Environmental Sampling

The environmental sampling program during the SI at Motor Pool Area 1300 includes the collection of surface, subsurface, and depositional soil samples and groundwater samples for chemical analyses. These samples will be collected and analyzed to provide data for characterizing the site in order to determine the environmental condition of the site and any further action to be conducted at the site.

4.2.1 Surface Soil Sampling

A total of seven surface soil samples will be collected from Motor Pool Area 1300.

4.2.1.1 Sample Locations and Rationale

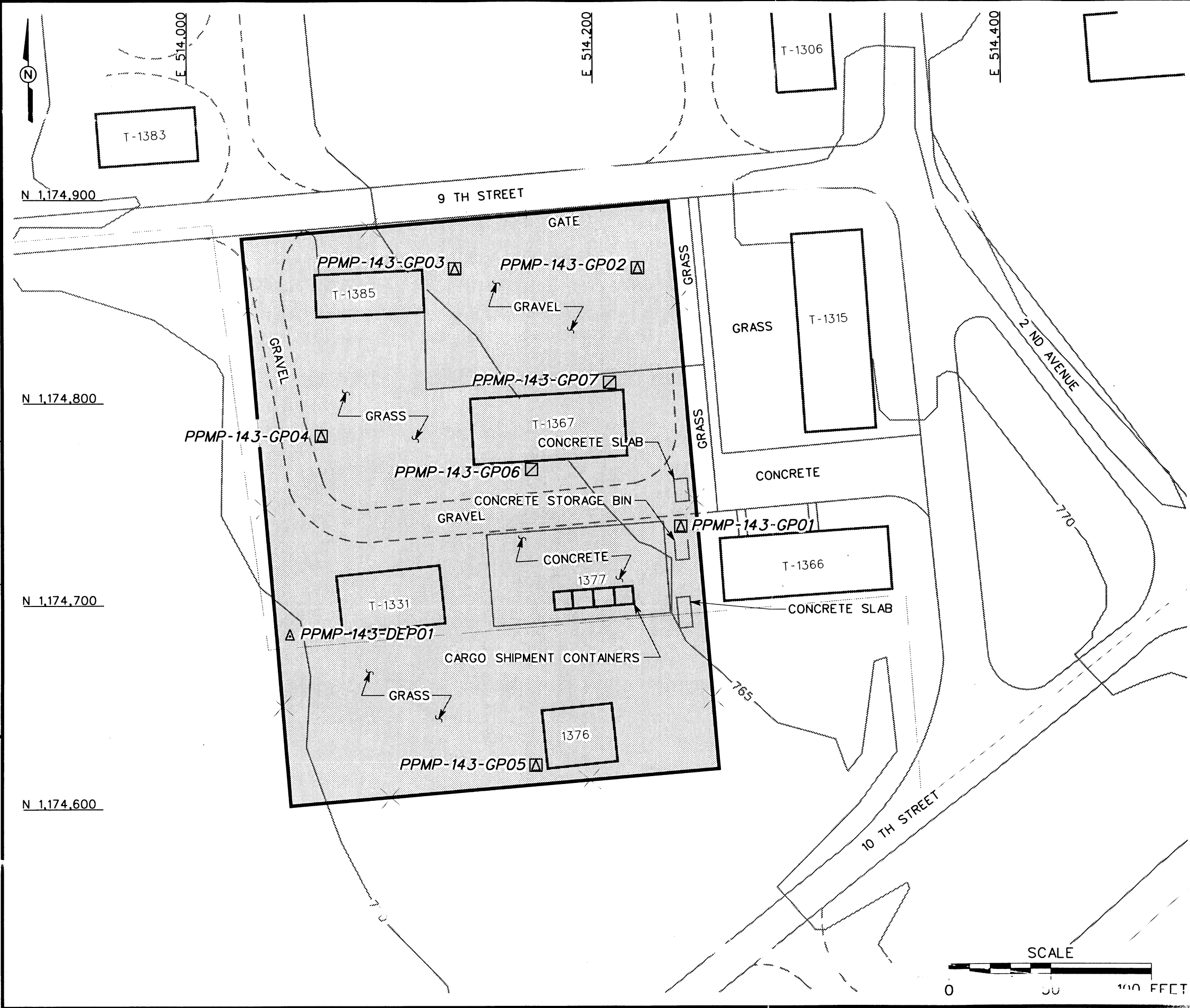
Surface soil sampling rationale is provided in Table 4-1. A total of seven surface soil samples will be collected from Motor Pool Area 1300. Surface soil samples will be collected from the upper 1 foot of soil at each sampling location. The proposed surface soil sampling locations are shown on Figure 4-1.

4.2.1.2 Sample Collection

Surface soil samples will be collected using the direct-push methodology as specified in Section 4.7.1.1 of the SAP. Surface soil samples to be collected at Motor Pool Area 1300 and their sample designations, depths, and required QA/QC sample quantities are listed in Table 4-2.

Surface soil samples collected at the site will be submitted for laboratory analyses of target compound list (TCL), volatile organic compounds (VOC), TCL semivolatile organic compounds (SVOC), and target analyte list (TAL) metals.

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- LEGEND**
- UNIMPROVED ROADS AND PARKING
 - PAVED ROADS AND PARKING
 - BUILDING
 - TOPOGRAPHIC CONTOURS
 - PARCEL BOUNDARY
 - FENCE
 - PROPOSED SURFACE AND SUBSURFACE SOIL SAMPLE
 - PROPOSED GROUNDWATER, SURFACE AND SUBSURFACE SOIL SAMPLE
 - PROPOSED DEPOSITIONAL SOIL SAMPLE

FIGURE 4-1
PROPOSED SAMPLE LOCATIONS
MOTOR POOL AREA 1300
PARCEL 143(7)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT MCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

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Table 4-1

**Sample Locations And Rationale
Motor Pool Area 1300, Parcel 143(7)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Media	Sample Location Rationale
PPMP-143-GP01	Surface soil, subsurface soil, and groundwater	Samples collected from the concrete storage bin located on the east part of the motor pool area to determine presence or absence of contamination from previous activities at the concrete storage bin area.
PPMP-143-GP02	Surface soil, subsurface soil, and groundwater	Samples collected from the current vehicle storage area to determine the presence or absence of contamination due to vehicle maintenance and storage activities.
PPMP-143-GP03	Surface soil, subsurface soil, and groundwater	Samples collected from the current vehicle storage area to determine the presence or absence of contamination due to vehicle maintenance and storage activities.
PPMP-143-GP04	Surface soil, subsurface soil, and groundwater	Samples collected from an area downgradient of the vehicle storage area to determine if contaminants have migrated from the source areas.
PPMP-143-GP05	Surface soil, subsurface soil, and groundwater	Samples collected from an area in the immediate vicinity of Building 1376 to determine the presence of contamination from storage activities.
PPMP-143-GP06	Surface soil and subsurface soil	Samples collected from the active workshop area to assess the effect of current workshop activities at the site.
PPMP-143-GP07	Surface soil and subsurface soil	Samples collected from the active workshop area to assess the effect of current workshop activities at the site.
PPMP-143-DEP01	Depositional soil	Sample collected from the most probable point of exit from the site for surface water runoff. Evidence of contaminant mobility by the surface water medium within the site would likely be integrated at this location.

Table 4-2

Surface, Subsurface, and Depositional Soil Sample Designations and QA/QC Sample Quantities
Motor Pool Area 1300, Parcel 143(7)
Fort McClellan, Calhoun County, Alabama

Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
PPMP-143-GP01	PPMP-143-GP01-SS-KP0001-REG	0 - 1				TCL VOCs, TCL SVOCs
	PPMP-143-GP01-DS-KP0002-REG	a				TAL Metals
PPMP-143-GP02	PPMP-143-GP02-SS-KP0003-REG	0 - 1			PPMP-143-GP02-SS-KP0003-MS	TCL VOCs, TCL SVOCs
	PPMP-143-GP02-DS-KP0004-REG	a			PPMP-143-GP02-SS-KP0003-MSD	TAL Metals
PPMP-143-GP03	PPMP-143-GP03-SS-KP0005-REG	0 - 1	PPMP-143-GP03-SS-KP0006-FD	PPMP-143-GP03-SS-KP0007-FS		TCL VOCs, TCL SVOCs
	PPMP-143-GP03-DS-KP0008-REG	a				TAL Metals
PPMP-143-GP04	PPMP-143-GP04-SS-KP0009-REG	0 - 1				TCL VOCs, TCL SVOCs
	PPMP-143-GP04-DS-KP0010-REG	a				TAL Metals
PPMP-143-GP05	PPMP-143-GP05-SS-KP0011-REG	0 - 1				TCL VOCs, TCL SVOCs
	PPMP-143-GP05-DS-KP0012-REG	a				TAL Metals
PPMP-143-GP06	PPMP-143-GP06-SS-KP0013-REG	0 - 1				TCL VOCs, TCL SVOCs
	PPMP-143-GP06-DS-KP0014-REG	a				TAL Metals
PPMP-143-GP07	PPMP-143-GP07-SS-KP0015-REG	0 - 1	PPMP-143-GP07-DS-KP0017-FD			TCL VOCs, TCL SVOCs
	PPMP-143-GP07-DS-KP0016-REG	a				TAL Metals
PPMP-143-DEP01	PPMP-143-DEP01-DEP-KP0018-REG	0 - 0.5				TCL VOCs, TCL SVOCs TAL Metals

* Actual sample depth selected for analysis will be at the discretion of the on-site geologist and will be based on field observation.

MS/MSD - Matrix spike/matrix spike duplicate.

QA/QC - Quality assurance/quality control.

SVOC - Semivolatile organic compound.

TAL - Target analyte list.

TCL - Target compound list.

VOC - Volatile organic compound.

4.2.2 Subsurface Soil Sampling

A total of seven subsurface soil samples will be collected from Motor Pool Area 1300.

4.2.2.1 Sample Locations and Rationale

Subsurface soil sampling rationale is provided in Table 4-1. A total of seven subsurface soil samples will be collected from Motor Pool Area 1300. The proposed subsurface soil sampling locations are shown on Figure 4-1.

4.2.2.2 Sample Collection

Subsurface soil samples will be collected using direct-push methodology specified in Sections 4.7.1.1 and 4.9.1.1 of the SAP. Subsurface soil samples will be collected continuously from 1 foot to 12 feet below land surface or until either groundwater or refusal is reached, whichever occurs first. Samples from the entire length of the boring will be field screened using a photoionization detector (PID). Samples will be collected for headspace screening as specified in Section 4.15 of the SAP. The sample from each boring exhibiting the highest reading on a PID will be sent to the laboratory for chemical analysis. The soil sample at the deepest depth interval interface will be submitted to the laboratory for chemical analysis if no PID readings exceeding background (ambient) level are detected. Subsurface soil samples to be collected and their sample designations, depths, and required QA/QC sample quantities are listed in Table 4-2.

Subsurface soil samples collected at the site will be submitted for laboratory analyses of TCL VOCs, TCL SVOCs, and TAL metals.

4.2.3 Groundwater Sampling

A total of five groundwater samples will be collected from Motor Pool Area 1300.

4.2.3.1 Sample Locations and Rationale

Groundwater sampling rationale is presented in Table 4-1. A total of five groundwater samples will be collected from direct-push temporary wells installed at Motor Pool Area 1300. The proposed groundwater sampling locations are presented on Figure 4-1.

4.2.3.2 Sample Collection

Five groundwater samples will be collected from direct-push borings completed as direct-push temporary wells. The direct-push temporary wells will be advanced to a depth sufficient to allow collection of a groundwater sample at each location. Sample collection will be performed as outlined in Sections 4.7.1.1 of the SAP.

Prior to sampling the newly installed temporary wells, static water levels will be measured from the wells at the site to assess the groundwater flow in the underlying aquifer. Water level measurements will be performed as outlined in Section 4.18 of the SAP.

At direct-push temporary well locations, where either refusal is reached before encountering water or direct-push temporary wells do not yield sufficient groundwater for laboratory analysis, conventional drilling methods will be utilized to install temporary monitoring wells. Temporary monitoring wells will be completed as specified in the addendum to Appendix C of the SAP, Section C.5.7 (IT, 1998c).

Groundwater samples to be collected and their sample designations, depths, and required QA/QC sample quantities are listed in Table 4-3. Groundwater samples collected at the site will be submitted for laboratory analyses of TCL VOCs, TCL SVOCs, and TAL metals.

4.2.4 Depositional Soil Sampling

One depositional soil sample will be collected from the site.

4.2.4.1 Sample Locations and Rationale

Depositional soil sampling rationale is presented in Table 4-1. The depositional soil sample will be collected from the area located southeast of Motor Pool Area 1300, at an area that is most probable for surface water runoff exit from the site. Figure 4-1 shows the proposed depositional soil sample location.

4.2.4.2 Sample Collection

Depositional soil sample collection will be conducted in accordance with the procedures for surface soil sample collection specified in Section 4.9.1.1 of the SAP. The depositional soil sample to be collected and corresponding sample designation, depth, and required QA/QC sample quantities are listed in Table 4-2.

The depositional soil sample collected at the site will be submitted for laboratory analyses of TCL VOCs, TCL SVOCs, and TAL metals.

4.3 Decontamination Requirements

Decontamination will be performed on sampling and nonsampling equipment primarily to ensure that contaminants are not introduced into samples from location to location. Decontamination of sampling equipment will be performed in accordance with the procedures presented in Section

Table 4-3

**Groundwater Sample Designations and QA/QC Sample Quantities
Motor Pool Area 1300, Parcel 143(7)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
PPMP-143-GP01	PPMP-143-GP01-GW-KP3001-REG	a				TCL VOCs, TCL SVOCs Tot TAL Metals
PPMP-143-GP02	PPMP-143-GP02-GW-KP3002-REG	a			PPMP-143-GP02-GW-KP3002-MS PPMP-143-GP02-GW-KP3002-MSD	TCL VOCs, TCL SVOCs Tot TAL Metals
PPMP-143-GP03	PPMP-143-GP03-GW-KP3003-REG	a	PPMP-143-GP03-GW-KP3004-FD	PPMP-143-GP03-GW-KP3005-FS		TCL VOCs, TCL SVOCs Tot TAL Metals
PPMP-143-GP04	PPMP-143-GP04-GW-KP3006-REG	a				TCL VOCs, TCL SVOCs Tot TAL Metals
PPMP-143-GP05	PPMP-143-GP05-GW-KP3007-REG	a				TCL VOCs, TCL SVOCs Tot TAL Metals

*Sample depth will depend on where sufficient first water is encountered to collect a water sample.

MS/MSD - Matrix spike/matrix spike duplicate.

QA/QC - Quality assurance/quality control.

SVOC - Semivolatile organic compound.

TAL - Target analyte list.

TCL - Target compound list.

VOC - Volatile organic compound.

4.10.1.1 of the SAP. Decontamination of nonsampling equipment will be performed in accordance with the procedures presented in Section 4.10.1.2 of the SAP.

4.4 Surveying of Sample Locations

Sampling locations will be marked with pin flags, stakes, and/or flagging and will be surveyed using either global positioning system (GPS) or conventional civil survey techniques, as necessary to obtain the required level of accuracy. Horizontal coordinates will be referenced to the Alabama State Plane coordinate system, 1983 North American Datum (NAD83). Elevations will be referenced to the National Geodetic Vertical Datum of 1929 or the North American Vertical Datum of 1988 (soon to be established on site).

Horizontal coordinates for all soil, and ground water locations will be recorded using a GPS to provide accuracy within 1 meter. Because of the need to use temporary wells to determine water levels, a higher level of accuracy is required. Temporary wells will be surveyed to an accuracy of 0.1 foot for horizontal coordinates and 0.01 foot for elevations, using survey-grade GPS techniques and/or conventional civil survey techniques, as required.

Procedures to be used for GPS surveying are described in Section 4.3 of the SAP. Conventional land survey requirements are presented in Section 4.19 of the SAP.

4.5 Analytical Program

Samples collected at locations specified in this chapter will be analyzed for the specified suite of chemicals and elements, based on the history of the site usage, as well as EPA, ADEM, FTMC and USACE requirements. The specific suite of analyses to be performed is based on the PSSCs present historically at the site and EPA, ADEM, FTMC, and USACE requirements. Target analyses for samples collected from Motor Pool Area 1300 consist of the following list of parameters:

- TCL VOCs – Method 5035/8260B
- TCL SVOCs – Method 8270C
- TAL Metals – Method 6010B/7000.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Table 4-4 in this SFSP and Table 6-1 in the QAP. Data will be reported and evaluated in accordance with CESAS Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). The chemical data will be reported via hard copy data packages by the laboratory using CLP-like

Table 4-4

Analytical Samples
Motor Pool Area 1300, Parcel 143(7)
Fort McClellan, Calhoun County, Alabama

Parameters	Analysis Method	Sample Matrix	TAT Needed	Field Samples			QA/QC Samples ⁽¹⁾					Quanterra	QA Lab
				No. of Sample Points	Nd. of Events	No. of Field Samples	Field Dups (10%)	Splits w/ QA Lab (5%)	MS/MSD (5%)	Trip Blank (1/ship)	Eq. Rinse (1/wk/matrix)	Total No. Analysis	Total No. Analysis
Motor Pool Area 1300 - Parcel 143(7): 5 water matrix: 5 groundwater; 15 soil matrix: 7 surface, 7 subsurface, 1 depositional													
TCL VOCs	8260B	water	normal	5	1	5	1	1	1	1	1	10	1
TCL SVOCs	8270C	water	normal	5	1	5	1	1	1		1	9	1
Tot TAL Metals	6010B/7000	water	normal	5	1	5	1	1	1		1	9	1
TCL VOCs	8260B	soil	normal	15	1	15	1	1	1		1	19	1
TCL SVOCs	8270C	soil	normal	15	1	15	1	1	1		1	19	1
TAL Metals	6010B/7000	soil	normal	15	1	15	1	1	1		1	19	1
Motor Pool Area 1300 Subtotal:				60			6	6	6	1	6	85	6

^aField duplicate, QA split, and MS/MSD samples were calculated as a percentage of the field samples collected per site and were rounded to the nearest whole number.

Trip blank samples will be collected in association with water matrix samples for VOC analysis only. Assumed four field samples per day to estimate trip blanks. Equipment blanks will be collected once per event whenever sampling equipment is field decontaminated and re-used. They will be repeated weekly for sampling events that are anticipated to last more than 1 week. Assumed 20 field samples will be collected per week to estimate number of equipment blanks.

Ship samples to:

Quanterra Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
Attn: John Reynolds
Tel: 423-588-6401
Fax: 423-584-4315

USACE laboratory split samples
are shipped to:

USACE South Atlantic Division Laboratory
Attn: Sample Receiving
611 South Cobb Drive
Marietta, Georgia 30060-3112
Tel: 770-919-5270

MS/MSD - Matrix spike/matrix spike duplicate.

QA/QC - Quality assurance/quality control.

SVOC - Semivolatile organic compound.

TAL - Target analyte list.

TCL - Target compound list.

VOC - Volatile organic compound.

forms. These packages and will be validated in accordance with EPA National Functional Guidelines by Level III criteria.

The on-site sample coordinator will provide sampling containers and preservatives, and coordinate sampling procedures to the field sampling crews in accordance with Table 5-1 in the QAP.

4.6 Sample Preservation, Packaging, and Shipping

Sample preservation, packaging, and shipping will follow the procedures specified in Section 4.13.2 of the SAP (IT, 1998a). Completed analysis request/chain-of-custody records will be secured and included with each shipment of coolers to:

Attn: Sample Receiving
Quanterra Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
Telephone: (423) 588-6401.

QA split samples collected for the USACE laboratory will be shipped to the following address:

Attn: Sample Receiving
USACE South Atlantic Division Laboratory
611 South Cobb Drive-3112
Marietta, Georgia 30060
Telephone: (770) 919-5270.

4.7 Investigation-Derived Waste Management

Management and disposal of the investigation-derived wastes (IDW) will follow procedures and requirements as described in Section 4.11 and Appendix D of the SAP. The IDW expected to be generated at Motor Pool Area 1300 will include decontamination fluids and disposable personal protective equipment. The IDW will be staged in the fenced area surrounding Buildings 335 and 336 while awaiting final disposal.

4.8 Site-Specific Safety and Health

Safety and health requirements for this SI are provided in the SSHP attachment for Motor Pool Area 1300, Parcels 143(7). The SSHP attachment will be used in conjunction with the SHP.

5.0 Project Schedule

The project schedule for the SI activities will be provided by the IT project manager to the Base Realignment and Closure Cleanup Team on a monthly basis.

6.0 References

Environmental Science and Engineering Inc. (ESE), 1998, *Final Environmental Baseline Survey, Fort McClellan, Alabama*, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

Fort McClellan (FTMC), 1997, *Fort McClellan Comprehensive Reuse Plan*, prepared under contract to the Calhoun County Commission, November.

IT Corporation (IT), 1998a, *Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama*, August.

IT Corporation (IT), 1998b, *Final Installation-Wide Work Plan, Fort McClellan, Calhoun County, Alabama*, August.

IT Corporation (IT), 1998c, Letter to Ellis Pope from Jeanne Yacoub, "Procedures for Temporary Residuum Monitoring Well Installation, Conversion, and Abandonment," November, 1998.

U.S. Army Corps of Engineers (USACE), 1998, *Statement of Work for Task Order CK005, Modification No. 1, Site Investigations at Fort McClellan, Alabama, Including Ecological Screening Sites (Creeks and Tribs), and Removal of Indoor Firing Ranges*, May.

U.S. Army Corps of Engineers (USACE), 1994, *Requirements for the Preparation of Sampling and Analysis Plans*, Engineer Manual EM 200-1-3, September 1.

U.S. Department of Agriculture, 1961, *Soil Survey, Calhoun County, Alabama*, Soil Conservation Service, Series 1958, No. 9, September.

U.S. Environmental Protection Agency (EPA), 1993, *Data Quality Objectives Process for Superfund, Interim Final Guidance*, EPA 540-R-93-071, September.

Site Investigation
Final
Site-Specific Field Sampling Plan Attachment
for the Washrack, Building 1224, Parcel 168(7)

Fort McClellan
Calhoun County, Alabama

Prepared for:

U.S. Army Corps of Engineers, Mobile District
109 St. Joseph Street
Mobile, Alabama 36602

Prepared by:

IT Corporation
312 Directors Drive
Knoxville, Tennessee 37923

Delivery Order CK005
Contract No. DACA21-96-D-0018
IT Project No. 774645

November 1998

Revision 1

Table of Contents

	<i>Page</i>
List of Tables	iii
List of Figures	iii
List of Acronyms.....	iv
Executive Summary	ES-1
1.0 Project Description	1-1
1.1 Introduction	1-1
1.2 Site Description	1-1
1.3 Scope of Work.....	1-2
2.0 Summary of Existing Environmental Studies	2-1
3.0 Site-Specific Data Quality Objectives	3-1
3.1 Overview	3-1
3.2 Data Users and Available Data.....	3-1
3.3 Conceptual Site Exposure Model	3-2
3.4 Decision-Making Process, Data Uses, and Needs.....	3-3
3.4.1 Risk Evaluation	3-3
3.4.2 Data Types and Quality	3-3
3.4.3 Precision, Accuracy, and Completeness.....	3-3
4.0 Field Activities	4-1
4.1 Utility Clearances	4-1
4.2 Environmental Sampling.....	4-1
4.2.1 Surface Soil Sampling.....	4-1
4.2.1.1 Sample Locations and Rationale	4-1
4.2.1.2 Sample Collection	4-1
4.2.2 Subsurface Soil Sampling.....	4-2
4.2.2.1 Sample Locations and Rationale	4-2
4.2.2.2 Sample Collection	4-2
4.2.3 Groundwater Sampling.....	4-2
4.2.3.1 Sample Locations and Rationale	4-2
4.2.3.2 Sample Collection	4-2
4.2.4 Surface Water Sampling.....	4-3

Table of Contents (Continued) _____

	Page
4.2.4.1 Sample Locations and Rationale	4-3
4.2.4.2 Sample Collection	4-3
4.2.5 Sediment Sampling.....	4-3
4.2.5.1 Sample Locations and Rationale	4-4
4.2.5.2 Sample Collection	4-4
4.3 Decontamination Requirements	4-4
4.4 Surveying of Sample Locations.....	4-4
4.5 Analytical Program.....	4-5
4.6 Sample Preservation, Packaging, and Shipping	4-5
4.7 Investigation-Derived Waste Management	4-6
4.8 Site-Specific Safety and Health	4-6
5.0 Project Schedule	5-1
6.0 References	6-1

List of Tables

Number	Title	Follows Page
3-1	Summary of Data Quality Objectives	3-1
4-1	Sample Locations and Rationale	4-1
4-2	Surface and Subsurface Soil Sample Designations and QA/QC Sample Quantities	4-1
4-3	Groundwater Sample Designations and QA/QC Sample Quantities	4-3
4-4	Surface Water and Sediment Sample Designations and QA/QC Sample Quantities	4-3
4-5	Analytical Samples	4-5

List of Figures

Number	Title	Follows Page
1-1	Site Location Map, Washrack, Building 1224, Parcel 168(7)	1-1
1-2	Site Map, Washrack, Building 1224, Parcel 168(7)	1-1
3-1	Human Health Conceptual Site Exposure Model for Washrack, Building 1224, Parcel 168(7)	3-2
4-1	Proposed Sample Locations, Washrack Building 1224, Parcel 168(7)	4-1

List of Acronyms

ADEM	Alabama Department of Environmental Management
CLP	Contract Laboratory Program
CERFA	Community Environmental Response Facilitation Act
CESAS	Corps of Engineers South Atlantic Savannah
CSEM	conceptual site exposure model
DOD	U.S. Department of Defense
DQO	data quality objective
EBS	environmental baseline survey
EPA	U.S. Environmental Protection Agency
ESE	Environmental Science and Engineering, Inc.
FTMC	Fort McClellan
GPS	global positioning system
IDW	investigation-derived waste
IT	IT Corporation
PID	photoionization detector
PSSC	potential site-specific chemical
QA/QC	quality assurance/quality control
QAP	installation-wide quality assurance plan
SAP	installation-wide sampling and analysis plan
SFSP	site-specific field sampling plan
SHP	installation-wide safety and health plan
SI	site investigation
SSHP	site-specific safety and health plan
SVOC	semivolatile organic compound
TAL	target analyte list
TCL	target compound list
USACE	U.S. Army Corps of Engineers
VOC	volatile organic compound
WP	installation-wide work plan

Executive Summary

In accordance with Contract No. DACA21-96-D-0018, Delivery Order CK005, IT Corporation (IT) will conduct site investigation activities at the Washrack, Building 1224, Parcel 168(7) to determine the presence or absence of site-specific chemicals. The purpose of this site-specific field sampling plan (SFSP) is to provide technical guidance for sampling activities at the Washrack, Building 1224.

The Washrack, Building 1224 is located in the northwest part of the Main Post, east of 3rd Avenue and north of 2nd Street. The Washrack was constructed in 1941 and rebuilt in 1984. The site consists of a vehicle wash pad and a Washrack connected to an oil/water separator. The oil/water separator discharges to the sanitary sewer. The Washrack is currently managed and utilized by the Alabama National Guard. Potential contaminant sources at the site include waste oil and petroleum products resulting from vehicle washing activities. IT will collect two surface soil samples, two subsurface soil samples, two groundwater samples, two surface water samples, and two sediment samples at this site. Chemical analyses of the samples collected during the field program will include volatile organic compounds, semivolatile organic compounds, and metals. Additionally, sediment samples will be analyzed for total organic carbon and grain size. Results from these analyses will be compared with site-specific screening levels specified in the installation-wide work plan (WP), and regulatory agency guidelines.

This SFSP attachment to the installation-wide sampling and analysis plan (SAP) (IT, 1997a) for the Washrack, Building 1224 will be used in conjunction with the site-specific safety and health plan (SSHP), and the WP (IT, 1997b) and SAP. The SAP includes the installation-wide safety and health plan, waste management plan, and quality assurance plan. Site-specific hazard analyses are included in the SSHP.

1.0 Project Description

1.1 Introduction

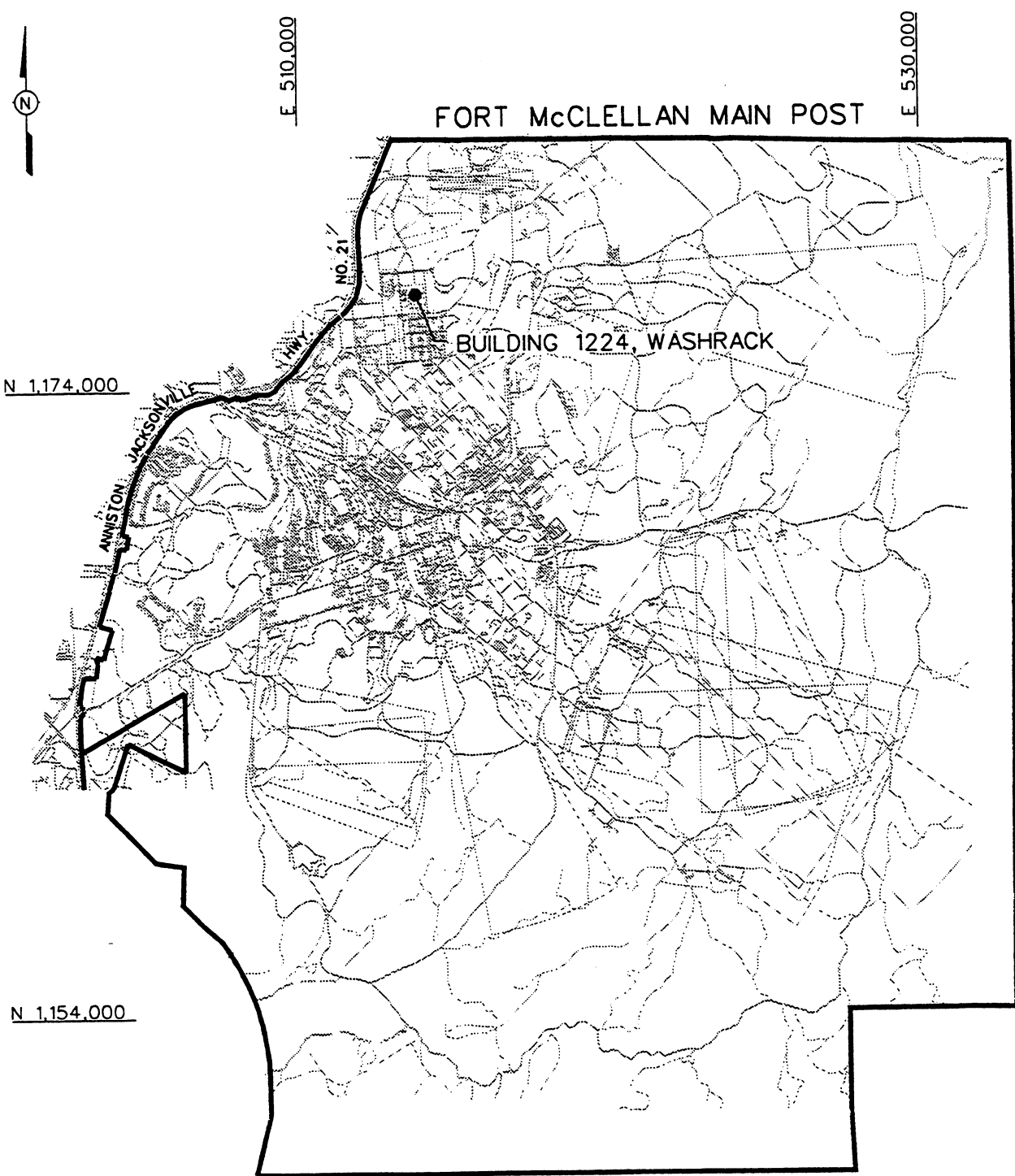
The U.S. Army is conducting studies of the environmental impact of suspected contaminants at Fort McClellan (FTMC) in Calhoun County, Alabama, under the management of the U.S. Army Corps of Engineers (USACE)-Mobile District. The USACE has contracted IT Corporation (IT) to provide environmental services for the site investigation (SI) of the Washrack, Building 1224, Parcel 168(7), under Delivery Order CK005, Contract No. DACA21-96-D-0018.

This site-specific field sampling plan (SFSP) attachment to the installation-wide sampling and analysis plan (SAP) (IT, 1998a) for FTMC has been prepared to provide technical guidance for sample collection and analysis at the Washrack, Building 1224, Parcel 168(7) (Figure 1-1). The SFSP will be used in conjunction with the site-specific safety and health plan (SSHP) developed for this site, and the installation-wide work plan (WP) (IT, 1998b) and SAP. The SAP includes the installation-wide safety and health plan (SHP), quality assurance plan (QAP), and waste management plan.

1.2 Site Description

The Washrack, Building 1224, Parcel 168(7) is located in the northwest part of the Main Post, east of 3rd Avenue and north of 2nd Street (Figure 1-2). The Washrack was constructed in 1941 and rebuilt in 1984. Currently, the site consists of a concrete vehicle wash pad and a washrack connected to an oil/water separator (OWS). The wash pad is a flat structure approximately 45 feet long and 30 feet wide. A drain line that diverts the washwater into the oil/water separator is located around the perimeter of the pad. The Washrack is a concrete structure approximately 45 feet long and 15 feet wide. The oil/water separator discharges to the sanitary sewer. Vehicles are washed on the washpad and sediments are allowed to settle in the sediment basin (part of the washrack adjacent to the oil/water separator). The sediment basin slopes from the ground surface at the eastern edge to a depth of 4 feet below ground surface at the western edge. FTMC currently regulates all active washracks under the Facilities Engineering Regulation No. 420-15 (December 1994). The regulation requires that oil/water separators be pumped out when oil in the tank reaches a certain established level. A subcontractor pumps the waste oil and disposes of the oil at a facility not located at FTMC. The Washrack is currently managed and utilized by the Alabama National Guard. The National Guard maintenance crew generally checks the OWS at Building 1224 once a month except for the heavy usage months of May and June when the OWS is checked on a weekly basis.

DWG. NO.: ... \774645es.173	INITIATOR: A. MAYILA	DATE LAST REV.: 07/15/98	STARTING DATE: 07/15/98	24 AUG 98
PROJ. NO.: 774645	PROJ. MGR.: J. YACOB	DRAFT. CHCK. BY: ENGR. CHCK. BY: A. MAYILA	DRAWN BY: D. BILLINGSLEY	13:03:10



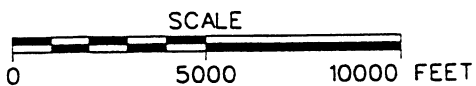
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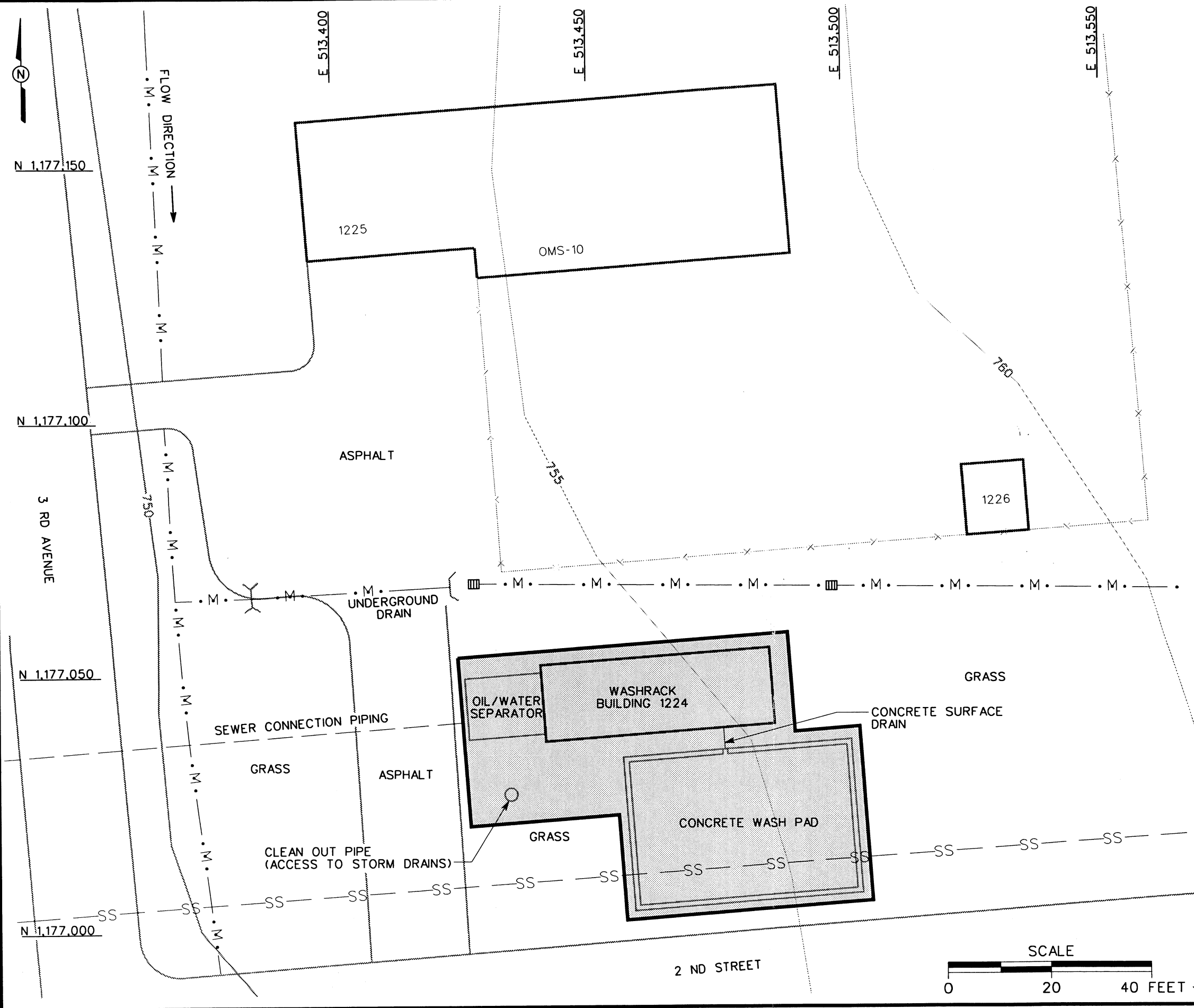
FORT McCLELLAN BOUNDARY

FIGURE 1-1
SITE LOCATION MAP
WASHRACK, BUILDING 1224
PARCEL 168(7)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018



dwg 174
4645es.174
DWG. NO.: 4645es.174
INITIATOR: A. MAYILA
PROJ. NO.: 774645
DRAFT. CHK. BY:
ENGR. CHK. BY: A. MAYILA
DATE LAST
DRAWN BY:
STARTING DATE: 07/22/98
DRAWN BY: D. BILLINGSLEY
10 NOV 98
16:32:28
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- LEGEND**
- UNIMPROVED ROADS AND PARKING
 - PAVED ROADS AND PARKING
 - BUILDING
 - TOPOGRAPHIC CONTOURS
 - PARCEL BOUNDARY
 - BRIDGE
 - CULVERT WITH HEADWALL
 - SURFACE DRAINAGE / CREEK
 - MANMADE SURFACE DRAINAGE FEATURE
 - FENCE
 - SANITARY SEWER LINE
 - STORM DRAIN BASIN

FIGURE 1-2
SITE MAP
WASHRACK, BUILDING 1224
PARCEL 168(7)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018



Site elevation is approximately 756 feet. It is likely that runoff is channeled through a man-made surface drainage running east-west approximately 10 feet north of the site and discharging to the culvert under the asphalt. The surface of the land slopes gently to the southwest. The soils found at this site fall into the Rarden series. The mapping unit consists of shallow, 2 -to 4-inch-thick, yellowish-red to dark-brown silty clay loam with mild slopes easily susceptible to erosion. Runoff is high and shows shallow gullies (U.S. Department of Agriculture, 1961). Site specific geology and hydrogeology are currently not available, but data will be gathered during site investigation activities.

1.3 Scope of Work

The scope of work for activities associated with the SI at the Washrack, Building 1224 site includes the following tasks (USACE, 1998):

- Develop the SFSP attachment.
- Develop the SSHP attachment.
- Collect two surface soil samples, two subsurface soil samples, two groundwater samples, two surface water samples, and two sediment samples to determine whether site-specific chemicals are present at the Washrack, Building 1224 and to provide data to determine any future planned corrective measures and closure activities.

At completion of the field activities and sample analyses, draft and final SI summary reports will be prepared to evaluate the absence or presence of site-specific chemicals and to recommend further actions if appropriate.

2.0 Summary of Existing Environmental Studies

Environmental Science and Engineering, Inc. (ESE) conducted an environmental baseline survey to document current environmental conditions of all FTMC property (ESE, 1998). The study identified sites that, based on available information, have no history of contamination and comply with U.S. Department of Defense (DOD) guidance on fast-track cleanup at closing installations. The EBS also provides a baseline picture of FTMC properties by identifying and categorizing the properties by seven criteria.

1. Areas where no storage, release, or disposal (including migration) has occurred.
2. Areas where only storage has occurred.
3. Areas of contamination below action levels.
4. Areas where all necessary remedial actions have been taken.
5. Areas of known contamination with removal and/or remedial action underway.
6. Areas of known contamination where required response actions have not been taken.
7. Areas that are not evaluated or require further evaluation.

The EBS was conducted in accordance with the Community Environmental Response Facilitation Act (CERFA) (CERFA-Public Law 102-426) protocols and DOD policy regarding contamination assessment. Record searches and reviews were performed on all reasonably available documents from FTMC, Alabama Department of Environmental Management (ADEM), U.S. Environmental Protection Agency (EPA) Region IV, and Calhoun County, as well as a database search of Comprehensive Environmental Response, Compensation, and Liability Act-regulated substances, petroleum products, and Resource Conservation and Recovery Act-regulated facilities. Available historic maps and aerial photographs were reviewed to document historic land uses. Personal and telephone interviews of past and present FTMC employees and military personnel were conducted. In addition, visual site inspections were conducted to verify conditions of specific property parcels. The Washrack, Building 1224 was identified as a Category 7 CERFA parcel, where previous investigations have not been conducted and further evaluation was needed.

3.0 Site-Specific Data Quality Objectives

3.1 Overview

The data quality objectives (DQO) process is followed to establish data requirements. This process ensures that the proper quantity and quality of data are generated to support the decision-making process associated with the action selection for the Washrack, Building 1224 site. This section incorporates the components of the DQO process described in the EPA publication EPA 540-R-93-071, *Data Quality Objectives Process for Superfund, Interim Final Guidance* (EPA, 1993). The DQO process as applied to the Washrack, Building 1224 site is described in more detail in Section 4.3 of the WP (IT, 1998b). Table 3-1 provides a summary of the factors used to determine the appropriate quantity of samples, and the procedures necessary to meet the objectives of the SI and establish a basis for future action at this site.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Chapter 4.0 in this SFSP and Table 6-1 in the QAP. Data will be reported and evaluated in accordance with U.S. Army Corps of Engineers South Atlantic Savannah (CESAS) Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). Chemical data will be reported via hard copy data packages by the laboratory using Contract Laboratory Program (CLP)-like forms. These packages will be validated in accordance with EPA National Functional Guidelines by Level III criteria.

3.2 Data Users and Available Data

The intended data users and available data related to the SI at the Washrack, Building 1224 site, presented in Table 3-1, have been used to formulate a conceptual site exposure model (CSEM) presented in Section 3.3. This CSEM was developed to support the preparation of this SFSP, which is necessary to meet the objectives of these activities and to establish a basis for future action at the site. The data users for the data and information generated during field activities are primarily the EPA, USACE, ADEM, FTMC, and the USACE supporting contractors. This SFSP, along with the necessary companion documents, has been designed to provide the regulatory agencies with sufficient detail to reach a determination as to the adequacy of the scope of work. The program has also been designed to provide the level of defensible data and information required to confirm or rule out the existence of residual potential site-specific chemicals (PSSC) in the site media.

Table 3-1

Summary of Data Quality Objectives
Washrack, Building 1224, Parcel 168(7)
Fort McClellan, Calhoun County, Alabama

Potential Data Users	Available Data	Conceptual Site Model	Media of Concern	Data Uses and Objectives	Data Types	Analytical Level	Data Quantity
EPA, ADEM USACE, DOD FTMC, IT Corporation Other Contractors Possible future land users	None	<u>Contaminant Source</u> Washrack, wash pad, and oil/water separator	Surface Soil	SI to determine the presence or absence of PSSC in the site media	Surface soil TCL VOCs, TCL SVOCs, TAL Metals	Definitive + CESAS Level B data packages	2 direct-push soil samples + QC
		<u>Migration Pathways</u> Dust emission and volatilization from soil.	Subsurface Soil		Subsurface soil TCL VOCs, TCL SVOCs, TAL Metals	Definitive + CESAS Level B data packages	2 direct-push soil samples + QC
		Infiltration and leaching to subsurface soil and groundwater.	Groundwater	Definitive quality data for future decision making	Groundwater TCL VOCs, TCL SVOCs, TAL Metals	Definitive + CESAS Level B data packages	2 direct-push groundwater samples + QC
		Groundwater discharge to surface water.	Surface water		Surface water TCL VOCs, TCL SVOCs, TAL Metals	Definitive + CESAS Level B data packages	2 surface water samples + QC
		Runoff and erosion from soil to surface water and sediment.	Sediment		Sediment TCL VOCs, TCL SVOCs, TAL Metals Total Organic Carbon, Grain Size	Definitive + CESAS Level B data packages	2 sediment samples +QC
		<u>Potential Receptors</u> Future resident Groundskeeper Construction worker Recreational site user					
		<u>PSSCs</u> Fuels and fuel components Waste oils Organic compounds Possible metals					

ADEM - Alabama Department of Environmental Management.
 CESAS - Corps of Engineers South Atlantic Savannah.
 DOD - U.S. Department of Defense.
 EPA - U.S. Environmental Protection Agency.
 FTMC - Fort McClellan.
 PSSC - Potential site-specific chemical.
 QC - Quality control.

VOC - Volatile organic compound.
 SI - Site investigation.
 SVOC - Semivolatile organic compound.
 TAL - Target analyte list.
 TCL - Target compound list.
 USACE - U.S. Army Corps of Engineers.

3.3 Conceptual Site Exposure Model

The CSEM provides the basis for identifying and evaluating potential risks to human health, as required to support a risk assessment. The CSEM includes all plausible receptor scenarios and potential exposure pathways. The CSEM graphically presents all possible pathways by which a potential receptor may be exposed, including all sources, release and transport pathways, and exposure routes. In addition, it facilitates consistent and comprehensive evaluation of human health risks, and helps ensure that potential pathways are not overlooked. The elements necessary to construct a complete exposure pathway and develop the CSEM include:

- Source (i.e., contaminated environmental) media
- Contaminant release mechanisms
- Contaminant transport pathways
- Receptor scenarios
- Exposure pathways.

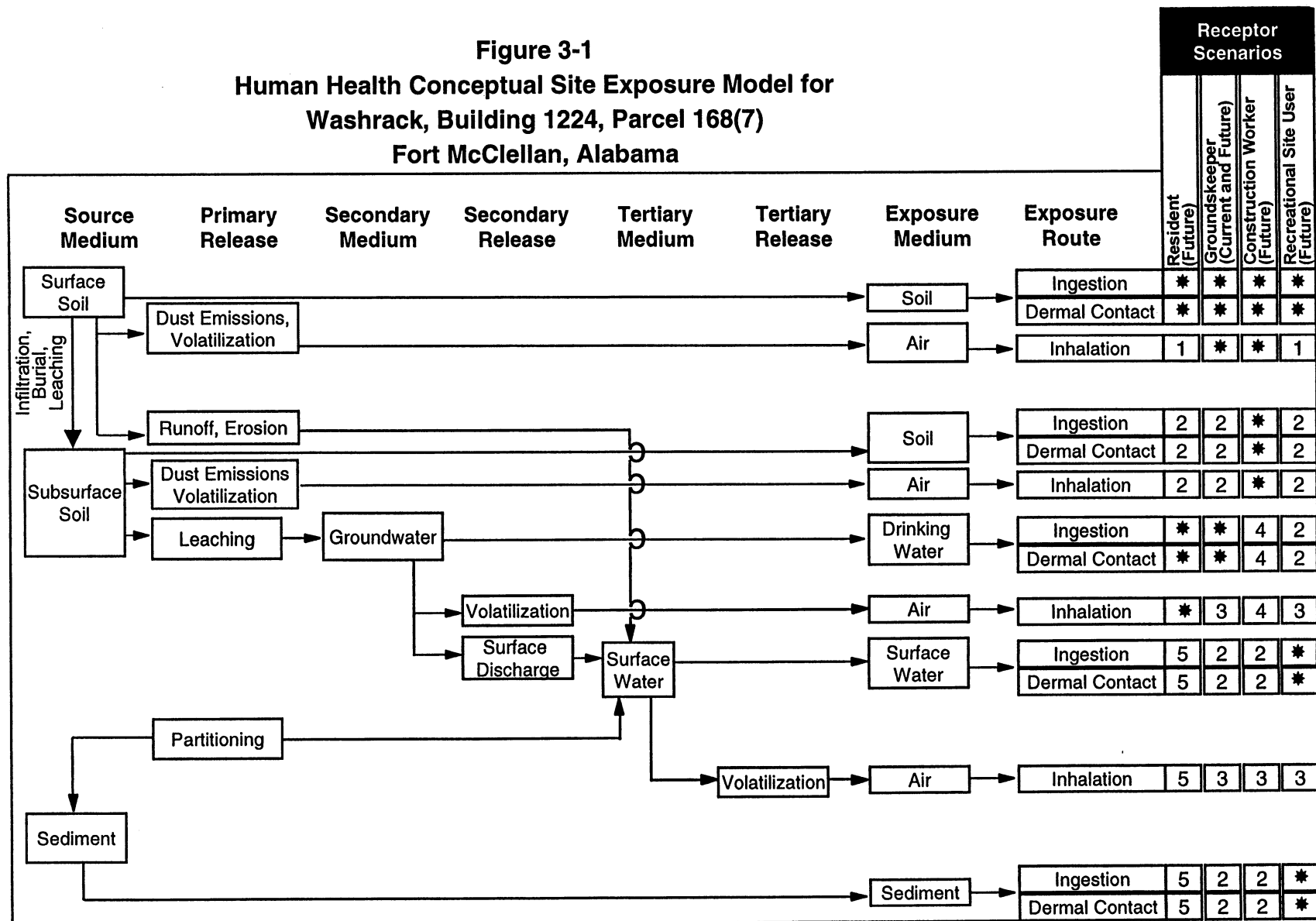
Contaminant release mechanisms and transport pathways are not relevant for direct receptor contact with a contaminated source media.

Parcel 168(7) consists of a Washrack, Building 1224, a concrete wash pad, and an oil/water separator. The facility has been in use since the initial installation in 1941. The area will most likely be part of an industrial park in the future (FTMC, 1997). The water and potential chemicals of concern generally drain from the site into an underground sewer system. The migration pathways of concern are listed on Table 3-1 and illustrated in Figure 3-1. These include infiltration to subsurface soil, infiltration and leaching to groundwater, discharge of groundwater to the surface, erosion and runoff to the surface water and sediment, dust emissions, and volatilization to ambient air. The media of concern include surface soil, subsurface soil, groundwater, surface water, and sediment that may have been contaminated by activities associated with the site.

Plausible receptors identified in the CSEM include:

- The resident scenario is included, to ensure that the investigation is adequately conservative.
- The groundskeeper scenario is considered for current and future purposes, as the facility is occupied and maintained by groundskeeping and maintenance personnel.
- The construction worker scenario is considered for future purposes only, because the site is currently not under construction, but could undergo construction in preparing for, or during, future use(s)

Figure 3-1
Human Health Conceptual Site Exposure Model for
Washrack, Building 1224, Parcel 168(7)
Fort McClellan, Alabama



* = Complete exposure pathway quantified in SSSL development.

1 = Volatilization from undisturbed surface soil deemed insignificant; soil is likely to be paved or vegetated, reducing dust emissions to insignificant levels; inhalation pathway not quantified.

2 = Incomplete exposure pathway.

3 = Although theoretically complete, this pathway is judged to be insignificant.

4 = Although theoretically complete, these pathways are not quantified for the construction worker because SSSLs developed for the groundskeeper would be at least as restrictive.

5 = Although theoretically complete, SSSLs for these pathways are developed only for the recreational site user. SSSLs developed for the recreational site user may be used to estimate risk for this receptor.

- The recreational site user scenario is considered for future use only, due to potential exposure to run-off and resultant contaminated media.
- The venison and fish consumption scenarios are excluded, because the washrack area does not provide significant habitat for wildlife or fish.

Figure 3-1 provides a summary of relevant contaminant release and transport mechanisms, source and exposure media, and receptors and exposure pathways.

3.4 Decision-Making Process, Data Uses, and Needs

The decision-making process consists of a seven-step process that is presented in detail in Section 4.3 of the WP (IT, 1998b) and will be followed during the SI at the Washrack, Building 1224. Data uses and needs are summarized in Table 3-1.

3.4.1 Risk Evaluation

Confirmation of contamination at the Washrack, Building 1224 will be based on comparing detected site chemicals of potential concern to site-specific screening levels developed in the WP. EPA definitive data with CESAS Level B data packages will be used to achieve detection limits sufficient to determine whether or not the established guidance criteria are exceeded in site media. Definitive data will be adequate for confirming the presence of site contamination and for supporting a feasibility study and risk assessment.

3.4.2 Data Types and Quality

Surface and subsurface soil, groundwater, surface water, and sediment will be sampled and analyzed to meet the objectives of the SI at the Washrack, Building 1224. Quality assurance/quality control (QA/QC) samples will be collected for all sample types as described in Chapter 4.0 of this SFSP. Samples will be analyzed by EPA-approved SW-846 methods, where available; comply with EPA definitive data requirements; and be reported using hard copy data packages. In addition to meeting the quality needs of this SI, data analyzed at this level of quality are appropriate for all phases of site characterization, remedial investigation, and risk assessment.

3.4.3 Precision, Accuracy, and Completeness

Laboratory requirements of precision, accuracy, and completeness for this SI are provided in Chapter 9.0 of the QAP.

4.0 Field Activities

4.1 Utility Clearances

Prior to performing any intrusive sampling, a utility clearance will be performed at all locations where soil and groundwater samples will be collected, using the procedure outlined in Section 4.2.6 of the SAP. The site manager will mark the proposed locations with stakes, coordinate with the installation to clear the proposed locations for utilities, and obtain digging permits. Once the locations are cleared, the stakes will be labeled as cleared.

4.2 Environmental Sampling

The environmental sampling program during the SI at the Washrack, Building 1224 includes the collection of surface soil, subsurface soil, surface water, sediment, and groundwater samples for chemical analyses. These samples will be collected and analyzed to provide data for characterizing the site to determine the environmental condition of the site and any further action to be conducted at the site.

4.2.1 Surface Soil Sampling

Two surface soil samples will be collected from the Washrack, Building 1224.

4.2.1.1 Sample Locations and Rationale

Surface soil sampling rationale is provided in Table 4-1. Two surface soil samples will be collected from the Washrack, Building 1224. Surface soil samples will be collected from the upper 1 foot of soil at each sampling location. The proposed surface soil sampling locations are shown on Figure 4-1.

4.2.1.2 Sample Collection

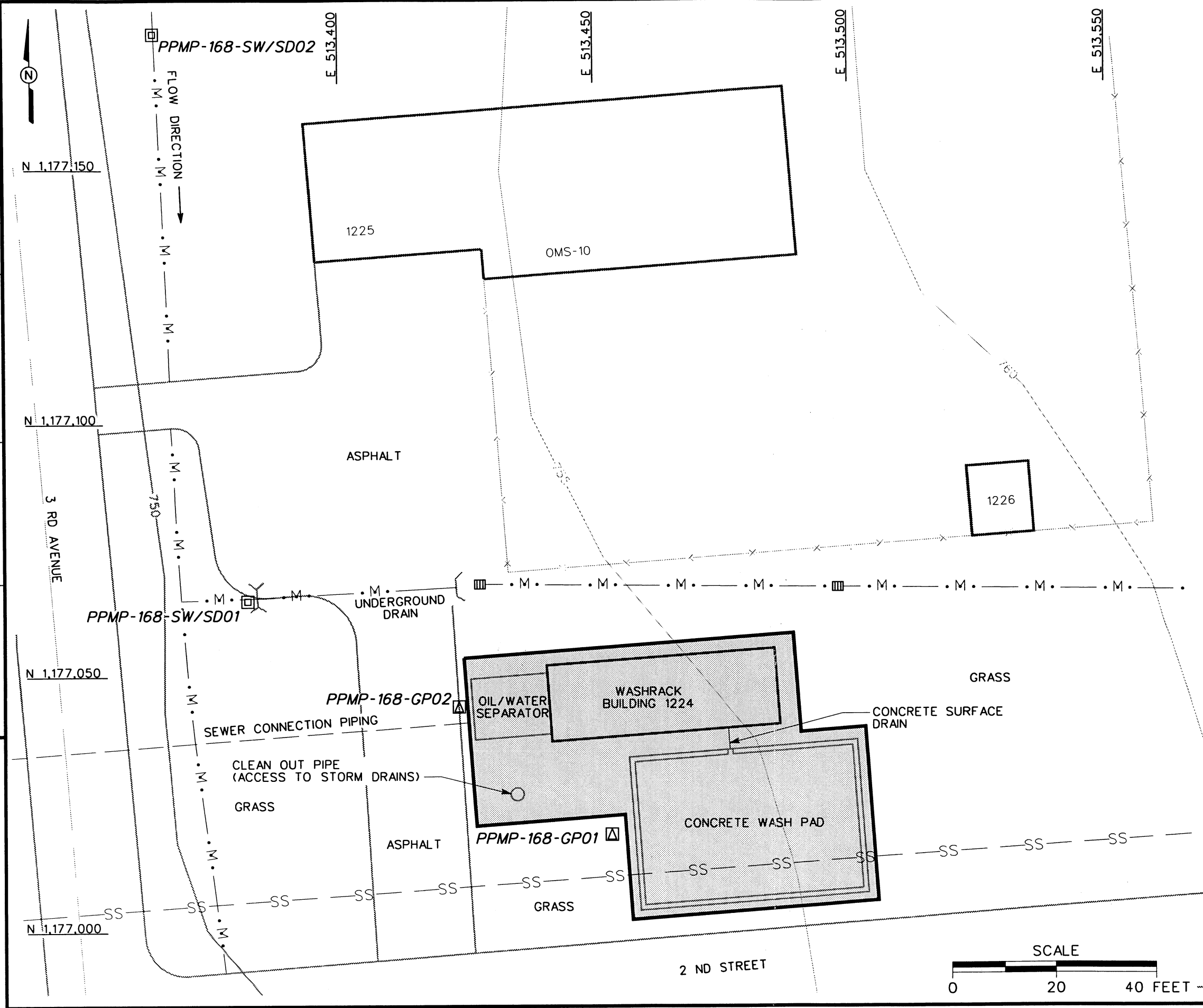
Surface soil samples will be collected using the direct-push methodology specified in Section 4.7.1.1 of the SAP. Surface soil samples to be collected and their sample designations, depths, and required QA/QC sample quantities are listed in Table 4-2.

Surface soil samples collected at the site will be submitted for laboratory analyses of target compound list (TCL) volatile organic compounds (VOC), TCL semivolatile organic compounds (SVOC), and target analyte list (TAL) metals.

Table 4-1

**Sample Locations And Rationale
Washrack, Building 1224, Parcel 168(7)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Media	Sample Location Rationale
PPMP-168-GP01	Surface soil, subsurface soil, and groundwater	Samples to be collected downgradient of concrete vehicle wash pad to determine presence or absence of contamination from washrack activities.
PPMP-168-GP02	Surface soil, subsurface soil, and groundwater	Samples to be collected from an area downgradient of the washrack and oil/water separator to determine if contaminants have migrated from the source area.
PPMP-168-SW/SD01	Surface water and sediment	Sample location is a point of discharge of the underground drain located adjacent to the washrack. Evidence of PSSC mobility within the site would likely be reflected at this location.
PPMP-168-SW/SD02	Surface water and sediment	Samples to be collected from an upgradient location to determine if PSSC originate from sources other than the site.



LEGEND

- UNIMPROVED ROADS AND PARKING
- PAVED ROADS AND PARKING
- BUILDING
- TOPOGRAPHIC CONTOURS
- PARCEL BOUNDARY
- BRIDGE
- CULVERT WITH HEADWALL
- SURFACE DRAINAGE / CREEK
- MANMADE SURFACE DRAINAGE FEATURE
- FENCE
- SANITARY SEWER LINE
- STORM DRAIN BASIN
- PROPOSED SURFACE WATER/SEDIMENT SAMPLE LOCATION
- PROPOSED GROUNDWATER, SURFACE AND SUBSURFACE SOIL SAMPLE

FIGURE 4-1
PROPOSED SAMPLE LOCATIONS
WASHRACK, BUILDING 1224
PARCEL 168(7)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

INTERNATIONAL
TECHNOLOGY
CORPORATION

Table 4-2

**Surface and Subsurface Soil Sample Designations and QA/QC Sample Quantities
Washrack, Building 1224, Parcel 168(7)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
PPMP-168-GP01	PPMP-168-GP01-SS-KQ0001-REG	0-1	PPMP-168-GP01-SS-KQ0002-FD	PPMP-168-GP01-SS-KQ0003-FS		TCL VOCs, TCL SVOCs, TAL Metals
	PPMP-168-GP01-DS-KQ0004-REG	a				
PPMP-168-GP02	PPMP-168-GP02-SS-KQ0005-REG	0-1			PPMP-168-GP02-DS-KQ0006-MS	TCL VOCs, TCL SVOCs, TAL Metals
	PPMP-168-GP02-DS-KQ0006-REG	a			PPMP-168-GP02-DS-KQ0006-MSD	

^a Actual sample depth selected for analysis will be at the discretion of the on-site geologist and will be based on field observation.

MS/MSD - Matrix spike/matrix spike duplicate.

QA/QC - Quality assurance/quality control.

SVOC - Semivolatile organic compound.

TAL - Target analyte list.

TCL - Target compound list.

VOC - Volatile organic compound.

4.2.2 Subsurface Soil Sampling

Two subsurface soil samples will be collected from the Washrack, Building 1224.

4.2.2.1 Sample Locations and Rationale

Subsurface soil sampling rationale is provided in Table 4-1. Two subsurface soil samples will be collected from the Washrack, Building 1224. The proposed subsurface soil sampling locations are shown on Figure 4-1.

4.2.2.2 Sample Collection

Subsurface soil samples will be collected using direct-push methodology specified in Sections 4.7.1.1 and 4.9.1.1 of the SAP. Subsurface soil samples will be collected continuously from 1 foot to 12 feet below land surface or until either groundwater or refusal is reached, whichever occurs first. Samples from the entire length of the boring will be field screened using a photoionization detector (PID). Samples will be collected for headspace screening as specified in Section 4.15 of the SAP. The sample from each boring exhibiting the highest reading on a PID will be sent to the laboratory for chemical analysis. The soil sample at the deepest depth interval will be submitted to the laboratory for chemical analysis if no PID readings exceeding background (ambient) level are detected. Subsurface soil samples to be collected at the site and their sample designations, depths, and required QA/QC sample quantities are listed in Table 4-2. Subsurface soil samples collected at the site will be submitted for laboratory analyses of TCL VOCs, TCL SVOCs, and TAL metals.

4.2.3 Groundwater Sampling

Two groundwater samples will be collected from the Washrack, Building 1224.

4.2.3.1 Sample Locations and Rationale

Groundwater sampling rationale is presented in Table 4-1. Two groundwater samples will be collected from direct-push temporary wells installed at the Washrack, Building 1224. The proposed groundwater sampling locations are presented on Figure 4-1.

4.2.3.2 Sample Collection

Two groundwater samples will be collected from direct-push borings completed as direct-push temporary wells. The temporary wells will be advanced to a depth sufficient to allow collection of a groundwater sample at each location. Sample collection procedures will be performed as outlined in Section 4.7.1.1 of the SAP. Prior to sampling the newly installed direct-push temporary wells, static water levels will be measured from the wells at the site to assess the

groundwater flow in the underlying aquifer. Water level measurements will be performed as outlined in Section 4.18 of the SAP.

At direct-push temporary well locations, where either refusal is reached before encountering water or direct-push temporary wells do not yield sufficient groundwater for laboratory analysis, conventional drilling methods will be utilized to install temporary monitoring wells. Temporary monitoring wells will be completed as specified in the addendum to Appendix C of the SAP, Section C.5.7 (IT, 1998c).

Groundwater samples to be collected and their sample designations, depths, and required QA/QC sample quantities are listed in Table 4-3. Groundwater samples collected at the site will be submitted for laboratory analyses of TCL VOCs, TCL SVOCs, and TAL metals.

4.2.4 Surface Water Sampling

Two surface water samples will be collected from the Washrack, Building 1224.

4.2.4.1 Sample Locations and Rationale

Surface water sampling rationale is presented in Table 4-1. One surface water sample will be collected from the point of discharge of the underground drain located adjacent to the Washrack, Building 1224. One other surface water sample will be collected from an upgradient location along the man-made drainage ditch. The proposed surface water sampling locations are shown on Figure 4-1.

4.2.4.2 Sample Collection

Two surface water samples will be collected from an area where surface water runoff is most likely to occur. In the event that the surface drainage ditches are dry, surface water samples will be collected following a rain event. Surface water samples to be collected and the corresponding sample designation, depth, and required QA/QC sample quantities are listed in Table 4-4. The surface water samples will be collected in accordance with the procedures specified in Section 4.9.1.3 of the SAP. The surface water sample collected at the site will be submitted for laboratory analyses of TCL VOCs, TCL SVOCs, and TAL metals.

4.2.5 Sediment Sampling

Two sediment samples will be collected from the Washrack, Building 1224.

Table 4-3

**Groundwater Sample Designations and QA/QC Sample Quantities
Washrack, Building 1224, Parcel 168(7)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
PPMP-168-GP01	PPMP-168-GP01-GW-KQ3001-REG	^a				TCL VOCs TCL SVOCs Total TAL Metals
PPMP-168-GP02	PPMP-168-GP02-GW-KQ3002-REG	^a			PPMP-168-GP02-GW-KQ3002-MS PPMP-168-GP02-GW-KQ3002-MDS	TCL VOCs TCL SVOCs Total TAL Metals

^a Sample depth will depend on where sufficient water is encountered to collect a water sample.

MS/MSD - Matrix spike/matrix spike duplicate.

QA/QC - Quality assurance/quality control.

SVOC - Semivolatile organic compound.

TAL - Target analyte list.

TCL - Target compound list.

VOC - Volatile organic compound.

Table 4-4

**Surface Water and Sediment Sample Designations and QA/QC Sample Quantities
Washrack, Building 1224, Parcel 168(7)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
PPMP-168-SW/SD01	PPMP-168-SW/SD01-SW-KQ2001-REG	N/A				TCL VOCs, TCL SVOCs, TAL Metals w/ TOC and Grain Size (for sediment only)
	PPMP-168-SW/SD01-SD-KQ1001-REG	0-0.5				
PPMP-168-SW/SD02	PPMP-168-SW/SD02-SW-KQ2002-REG	N/A				TCL VOCs, TCL SVOCs, TAL Metals w/ TOC and Grain Size (for sediment only)
	PPMP-168-SW/SD02-SD-KQ1002REG	0-0.5				

MS/MSD - Matrix spike/matrix spike duplicate.

QA/QC - Quality assurance/quality control.

SVOC - Semivolatile organic compound.

TAL - Target analyte list.

TCL - Target compound list.

TOC - Total organic compound.

VOC - Volatile organic compound.

4.2.5.1 Sample Locations and Rationale

Sediment sampling rationale is presented in Table 4-1. One sediment sample will be collected from the point of discharge of the underground drain located adjacent to Washrack, Building 1224. The second surface water sample will be collected from an upgradient location along the man-made drainage ditch. The sediment samples will be collected from the same locations as the surface water samples. The proposed sediment sampling locations are shown on Figure 4-1.

4.2.5.2 Sample Collection

Sediment samples to be collected and the corresponding sample designation, depth, and required QA/QC sample quantities are listed in Table 4-4. Sediment samples will be collected in accordance with the procedures specified in Section 4.9.1.2 of the SAP. Sediment samples collected at the site will be submitted for laboratory analyses of TCL VOCs, TCL SVOCs, and TAL metals.

4.3 Decontamination Requirements

Decontamination will be performed on sampling and nonsampling equipment primarily to ensure that contaminants are not introduced into samples from location to location. Decontamination of sampling equipment will be performed in accordance with the procedures presented in Section 4.10.1.1 of the SAP. Decontamination of nonsampling equipment will be performed in accordance with the procedures presented in Section 4.10.1.2 of the SAP.

4.4 Surveying of Sample Locations

Sampling locations will be marked with pin flags, stakes, and/or flagging and will be surveyed using either global positioning system (GPS) or conventional civil survey techniques, as necessary to obtain the required level of accuracy. Horizontal coordinates will be referenced to the Alabama State Plane coordinate system, 1983 North American Datum (NAD83). Elevations will be referenced to the National Geodetic Vertical Datum of 1929 or the North American Vertical Datum of 1988 (soon to be established on site).

Horizontal coordinates for all soil and groundwater locations will be recorded using a GPS to provide accuracy within 1 meter. Because of the need to use temporary wells to determine water levels, a higher level of accuracy is required. Temporary wells will be surveyed to an accuracy of 0.1 foot for horizontal coordinates and 0.01 foot for elevations, using survey-grade GPS techniques and/or conventional civil survey techniques, as required.

Procedures to be used for GPS surveying are described in Section 4.3 of the SAP. Conventional land survey requirements are presented in Section 4.19 of the SAP.

4.5 Analytical Program

Samples collected at locations specified in this chapter will be analyzed for the specified suite of chemicals and elements based on the history of the site usage, as well as EPA, ADEM, FTMC, and USACE requirements. The specific suite of analyses to be performed is based on the PSSCs present historically at the site and EPA, ADEM, FTMC, and USACE requirements. Target analyses for samples collected from the Washrack, Building 1224 consist of the following list of parameters:

- TCL VOCs – Method 5035/8260B
- TCL SVOCs – Method 8270C
- TAL Metals – Method 6010B/7000.

In addition, the sediment samples will be analyzed for the following parameters:

- Total organic carbon – Method 9060
- Grain size – American Society for Testing and Materials D-421/D-422.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Table 4-5 in this SSFP and Table 6-1 in the QAP. Data will be reported and evaluated in accordance with CESAS Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). The chemical data will be reported via hard copy data packages by the laboratory using CLP-like forms. These packages and will be validated in accordance with EPA National Functional Guidelines by Level III criteria.

The on-site sample coordinator will provide sampling containers and preservatives, and will coordinate sampling procedures to the field sampling crews in accordance with Table 5-1 in the QAP.

4.6 Sample Preservation, Packaging, and Shipping

Sample preservation, packaging, and shipping will follow the procedures specified in Section 4.13.2 of the SAP. Completed analysis request/chain-of-custody records will be secured and included with each shipment of coolers to:

Table 4-5

Analytical Samples
Washrack, Building 1224, Parcel 168(7)
Fort McClellan, Calhoun County, Alabama

Parameters	Analysis Method	Sample Matrix	TAT Needed	Field Samples			QA/QC Samples ^a					Quanterra	QA Lab
				No. of Sample Points	No. of Events	No. of Field Samples	Field Dups (10%)	Splits w/ QA Lab (10%)	MS/MSD (5%)	Trip Blank (1/ship)	Eq. Rinse (1/wk/matrix)	Total No. Analysis	Total No. Analysis
Washrack, Building 1224 - Parcel 168(7): 3 water matrix: 2 groundwater, 2 surface water; 5 soil matrix: 2 surface, 2 subsurface, 2 sediment													
TCL VOCs	8260B	water	normal	3	1	3			1	1	1	7	0
TCL SVOCs	8270C	water	normal	3	1	3			1		1	6	0
Tot TAL Metals	6010B/7000	water	normal	3	1	3			1		1	6	0
TCL VOCs	8260B	soil	normal	5	1	5	1	1	1		1	9	1
TCL SVOCs	8270C	soil	normal	5	1	5	1	1	1		1	9	1
TAL Metals	6010B/7000	soil	normal	5	1	5	1	1	1		1	9	1
Tot Org Carb	9060	sediment	normal	2	1	2						2	0
Grain Size	ASTM	sediment	normal	2	1	2						2	0
Washrack, Building 1224 Subtotal:						28	3	3	6	1	6	50	3

^aField duplicate, QA split, and MS/MSD samples were calculated as a percentage of the field samples collected per site and were rounded to the nearest whole number.

Trip blank samples will be collected in association with water matrix samples for VOC analysis only. Assumed four field samples per day to estimate trip blanks. Equipment blanks will be collected once per event whenever sampling equipment is field decontaminated and re-used. They will be repeated weekly for sampling events that are anticipated to last more than 1 week. Assumed 20 field samples will be collected per week to estimate number of equipment blanks.

Ship samples to: Quanterra Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
Attn: John Reynolds
Tel: 423-588-6401
Fax: 423-584-4315

USACE laboratory split samples
are shipped to:

USACE South Atlantic Division Laboratory
Attn: Sample Receiving
611 South Cobb Drive
Marietta, Georgia 30060-3112
Tel: 770-919-5270

QA/QC - Quality assurance/quality control.
MS/MSD - Matrix spike/matrix spike duplicate.
VOC - Volatile organic compound.
SVOC - Semivolatile organic compound.
TAL - Target analyte list.
TCL - Target compound list.

Attn: Sample Receiving
Quanterra Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
Telephone: (423) 588-6401.

QA split samples collected for the USACE laboratory will be shipped to the following address:

Attn: Sample Receiving
USACE South Atlantic Division Laboratory
611 South Cobb Drive-3112
Marietta, Georgia 30060
Telephone: (770) 919-5270.

4.7 Investigation-Derived Waste Management

Management and disposal of the investigation-derived wastes (IDW) will follow procedures and requirements as described in Section 4.11 and Appendix D of the SAP. The IDW expected to be generated at the Washrack, Building 1224 will include decontamination fluids and disposable personal protective equipment. The IDW will be staged in the fenced area surrounding Buildings 335 and 336 while awaiting final disposal.

4.8 Site-Specific Safety and Health

Safety and health requirements for this SI are provided in the SSHP attachment for the Washrack, Building 1224, Parcel 168(7). The SSHP attachment will be used in conjunction with the SHP.

5.0 Project Schedule

The project schedule for the SI activities will be provided by the IT project manager to the Base Realignment and Closure Cleanup Team on a monthly basis.

6.0 References

Environmental Science and Engineering Inc. (ESE), 1998, *Final Environmental Baseline Survey, Fort McClellan, Alabama*, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

Fort McClellan (FTMC), 1997, *Fort McClellan Comprehensive Reuse Plan*, prepared under contract to the Calhoun County Commission, November.

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IT Corporation (IT), 1998c, Letter to Ellis Pope from Jeanne Yacoub, "Procedures for Temporary Residuum Monitoring Well Installation, Conversion, and Abandonment," November, 1998.

U.S. Army Corps of Engineers (USACE), 1998, *Statement of Work for Task Order CK005, Modification No. 1, Site Investigations at Fort McClellan, Alabama, Including Ecological Screening Sites (Creeks and Tribs), and Removal of Indoor Firing Ranges*, May.

U.S. Army Corps of Engineers (USACE), 1994, *Requirements for the Preparation of Sampling and Analysis Plans*, Engineer Manual EM 200-1-3, September 1.

U.S. Department of Agriculture, 1961, *Soil Survey, Calhoun County, Alabama*, Soil Conservation Service, Series 1958, No. 9, September.

U.S. Environmental Protection Agency (EPA), 1993, *Data Quality Objectives Process for Superfund, Interim Final Guidance*, EPA 540-R-93-071, September.

Site Investigation
Final
Site-Specific Field Sampling Plan Attachment
for the Small Weapons Storage and Cleaning Compound
Building 1378, Parcel 174(7)

Fort McClellan
Calhoun County, Alabama

Prepared for:

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Delivery Order CK005
Contract No. DACA21-96-D-0018
IT Project No. 774645

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Revision 1

Table of Contents

	<i>Page</i>
List of Tables	iii
List of Figures	iii
List of Acronyms.....	iv
Executive Summary	ES-1
1.0 Project Description	1-1
1.1 Introduction	1-1
1.2 Site Description	1-1
1.3 Scope of Work	1-2
2.0 Summary of Existing Environmental Studies	2-1
3.0 Site-Specific Data Quality Objectives	3-1
3.1 Overview	3-1
3.2 Data Users and Available Data.....	3-1
3.3 Conceptual Site Exposure Model	3-2
3.4 Decision-Making Process, Data Uses, and Needs	3-3
3.4.1 Risk Evaluation	3-3
3.4.2 Data Types and Quality	3-3
3.4.3 Precision, Accuracy, and Completeness	3-4
4.0 Field Activities	4-1
4.1 Utility Clearances	4-1
4.2 Environmental Sampling	4-1
4.2.1 Surface Soil Sampling	4-1
4.2.1.1 Sample Locations and Rationale	4-1
4.2.1.2 Sample Collection	4-1
4.2.2 Subsurface Soil Sampling.....	4-2
4.2.2.1 Sample Locations and Rationale	4-2
4.2.2.2 Sample Collection	4-2
4.2.3 Groundwater Sampling.....	4-2
4.2.3.1 Sample Locations and Rationale	4-2
4.2.3.2 Sample Collection	4-2
4.2.4 Surface Water Sampling.....	4-3
4.2.4.1 Sample Locations and Rationale	4-3
4.2.4.2 Sample Collection	4-3

Table of Contents (Continued)

	Page
4.2.5 Sediment Sampling.....	4-3
4.2.5.1 Sample Locations and Rationale	4-4
4.2.5.2 Sample Collection	4-4
4.3 Decontamination Requirements	4-4
4.4 Surveying of Sample Locations.....	4-4
4.5 Analytical Program.....	4-5
4.6 Sample Preservation, Packaging, and Shipping	4-5
4.7 Investigation-Derived Waste Management	4-6
4.8 Site-Specific Safety and Health.....	4-6
5.0 Project Schedule	5-1
6.0 References	6-1

List of Tables

Number	Title	Follows Page
3-1	Summary of Data Quality Objectives	3-1
4-1	Sample Locations and Rationale	4-1
4-2	Surface and Subsurface Soil Sample Designations and QA/QC Sample Quantities	4-1
4-3	Groundwater Sample Designations and QA/QC Sample Quantities	4-3
4-4	Surface Water and Sediment Sample Designations and QA/QC Sample Quantities	4-3
4-5	Analytical Samples	4-5

List of Figures

Number	Title	Follows Page
1-1	Site Location Map, Small Weapons Storage and Cleaning Compound, Building 1378	1-1
1-2	Site Map, Small Weapons Storage and Cleaning Compound, Building 1378	1-1
3-1	Human Health Conceptual Site Exposure Model	3-3
4-1	Proposed Sample Locations, Small Weapons Storage and Cleaning Compound, Building 1378	4-1

List of Acronyms

ADEM	Alabama Department of Environmental Management
CLP	Contract Laboratory Program
CERFA	Community Environmental Response Facilitation Act
CESAS	Corps of Engineers South Atlantic Savannah
COPC	chemical(s) of potential concern
CSEM	conceptual site exposure model
DOD	U.S. Department of Defense
DQO	data quality objective
EBS	environmental baseline survey
EPA	U.S. Environmental Protection Agency
ESE	Environmental Science and Engineering, Inc.
FTMC	Fort McClellan
GPS	global positioning system
IDW	investigation-derived waste
IT	IT Corporation
PID	photoionization detector
PSSC	potential site-specific chemical
QA/QC	quality assurance/quality control
QAP	installation-wide quality assurance plan
SAP	installation-wide sampling and analysis plan
SFSP	site-specific field sampling plan
SHP	installation-wide safety and health plan
SI	site investigation
SSHP	site-specific safety and health plan
SVOC	semi volatile compound
TAL	target analyte list
TCL	target compound list
USACE	U.S. Army Corps of Engineers
VOC	volatile organic compound
WP	installation-wide work plan

Executive Summary

In accordance with Contract No. DACA21-96-D-0018, Delivery Order CK005, IT Corporation (IT) will conduct site investigation activities at the Small Weapons Storage and Cleaning Compound, Building 1378, Parcel 174(7) to determine the presence or absence of site-specific chemicals. The purpose of this site-specific field sampling plan (SFSP) is to provide technical guidance for sampling activities at the Small Weapons Storage and Cleaning Compound, Building 1378.

The Small Weapons Storage and Cleaning Compound, Parcel 174(7) is located in the northwest part of the Main Post at 5th Street. The compound was built in 1978 and was originally used for boat storage, but was redesigned for weapons storage in the late 1980s. The compound consists of three storage buildings: a small corrugated iron shed, a small flammable and hazardous storage building, and a boat shed (Building 1378). The compound is covered with gravel, fenced, and access is restricted.

A small flammable and hazardous materials storage building is located on the northwest portion of the compound. Small quantities of hazardous materials (lubricants) are stored and are reported to be below Comprehensive Environmental Response, Compensation, and Liability Act reportable (Title 40 Code of Federal Regulations Part 373) quantities. A small storage shed, is located on the southwest part of the compound and is kept locked at all times. Small caliber weapons are stripped and cleaned at the site.

IT will collect four surface soil samples, four subsurface soil samples, two groundwater samples, three surface water samples and three sediment samples at this site. Chemical analyses of the samples collected during the field program will include volatile organic compounds, semivolatile organic compounds, and metals. Additionally, sediment samples will be analyzed for total organic carbon and grain size. Results from these analyses will be compared with site-specific screening levels specified in the installation wide work plan (WP) and regulatory agency guidelines.

This site-specific field sampling plan (SFSP) attachment to the installation-wide sampling and analysis plan (SAP) (IT, 1998a) for the Small Weapons Storage and Cleaning Compound, Building 1378 will be used in conjunction with the site-specific safety and health plan (SSHP), and the installation-wide WP (IT, 1998b) and SAP. The SAP includes the installation-wide

safety and health plan, waste management plan and quality assurance plan. Site-specific hazard analyses are included in the SSHP.

1.0 Project Description

1.1 Introduction

The U.S. Army is conducting studies of the environmental impact of suspected contaminants at Fort McClellan (FTMC) in Calhoun County, Alabama, under the management of the U.S. Army Corps of Engineers (USACE)-Mobile District. The USACE has contracted IT Corporation (IT) to provide environmental services for the site investigation (SI) of the Small Weapons Storage and Cleaning Compound, Building 1378, Parcel 174(7), under Delivery Order CK005, Contract No. DACA21-96-D-0018.

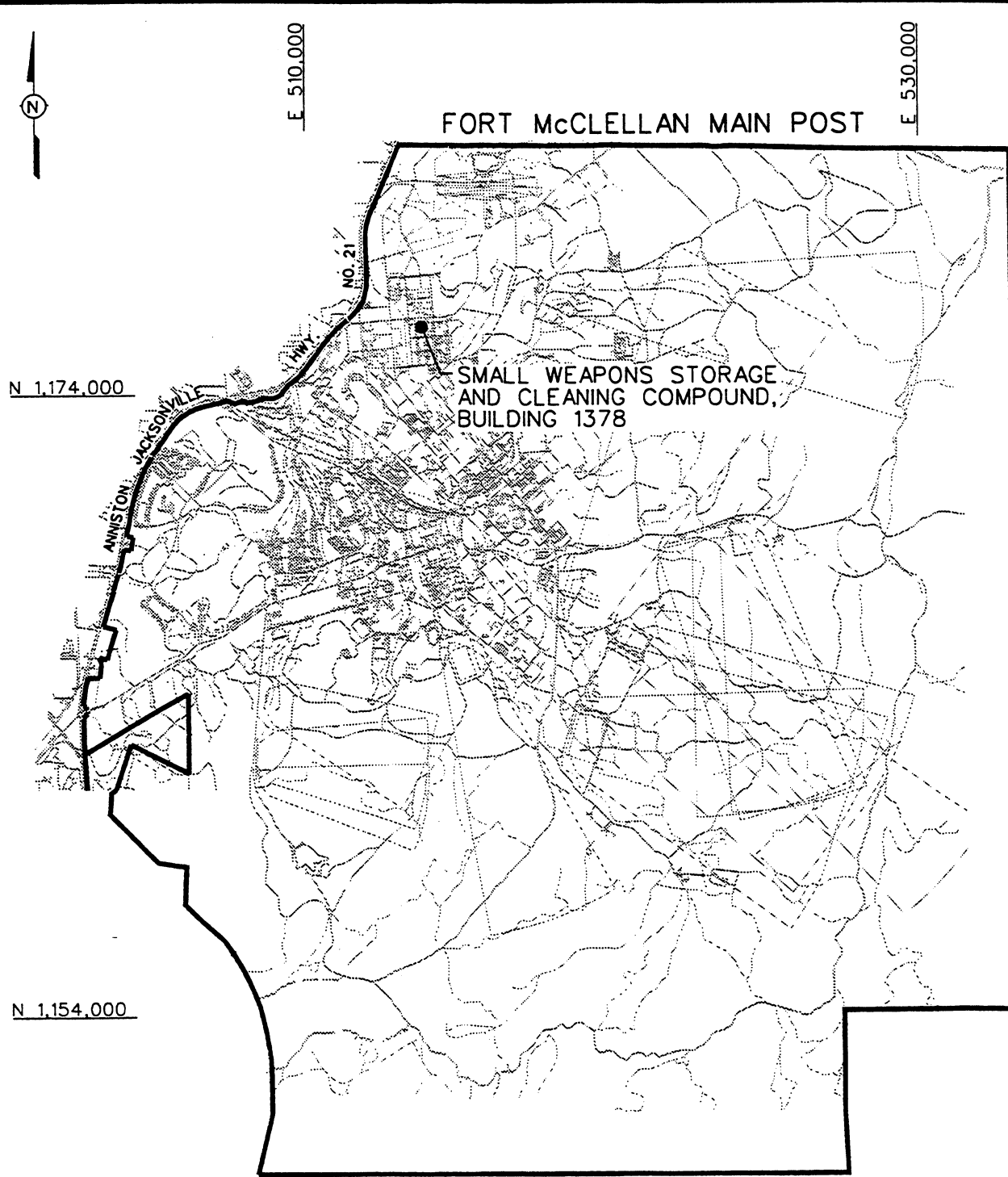
This site-specific field sampling plan (SFSP) attachment to the installation-wide sampling and analysis plan (SAP) (IT, 1998a) for FTMC has been prepared to provide technical guidance for sample collection and analysis at the Small Weapons Storage and Cleaning Compound, Building 1378, Parcel 174(7) (Figure 1-1). The SFSP will be used in conjunction with the site-specific safety and health plan (SSHP) developed for the Small Weapons Storage and Cleaning Compound, Building 1378 and the installation-wide work plan (WP) (IT, 1998b) and SAP. The SAP includes the installation-wide safety and health plan (SHP), quality assurance plan (QAP), and waste management plan.

1.2 Site Description


The Small Weapons Storage and Cleaning Compound, Parcel 174(7), managed by the Alabama National Guard, is located in the northwest part of the Main Post on 5th Street (Figure 1-2). The compound was built in 1978 and was originally used for boat storage, but was redesigned for weapons cleaning in the late 1980s. The site consists of three storage buildings: a small corrugated iron shed, a small flammable and hazardous storage building, and a boat shed (Building 1378). The 1-acre compound is covered with gravel, the entire area is fenced, and access is restricted.

A small flammable and hazardous materials storage building is located on the northwest portion of the compound. Small quantities of hazardous materials (lubricants) are stored in the building and are reported to be below Comprehensive Environmental Response, Compensation, and Liability Act reportable (Title 40 Code of Federal Regulations Part 373) quantities. A small storage shed, is located on the southwest part of the compound and is kept locked at all times. Small caliber weapons are stripped and cleaned on tables that are placed temporarily, for the occasion, in Building 1378, the boat shed. Weapons are not cleaned anywhere else within the

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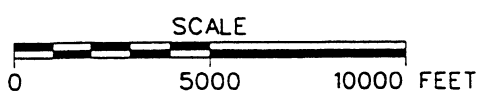
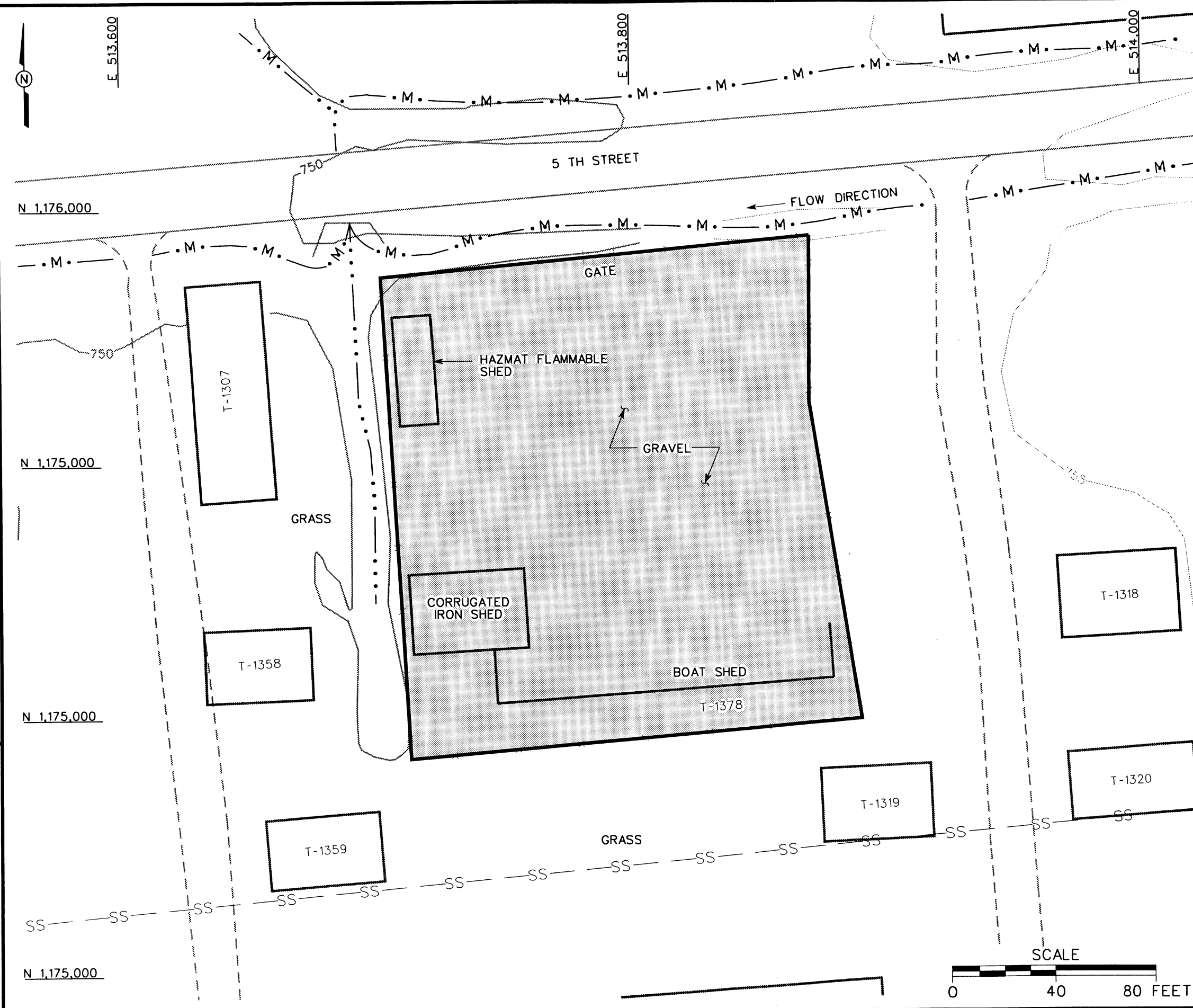


FIGURE 1-1
SITE LOCATION MAP
SMALL WEAPONS STORAGE AND
CLEANING COMPOUND, BUILDING 1378
PARCEL 174(7)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018



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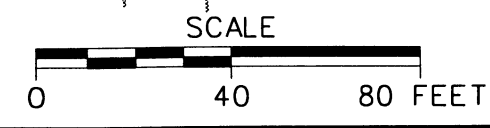


- LEGEND**
- UNIMPROVED ROADS AND PARKING
 - PAVED ROADS AND PARKING
 - BUILDING
 - TOPOGRAPHIC CONTOURS
 - PARCEL BOUNDARY
 - BRIDGE
 - CULVERT WITH HEADWALL
 - SURFACE DRAINAGE / CREEK
 - MANMADE SURFACE DRAINAGE FEATURE
 - FENCE
 - SANITARY SEWER LINE

FIGURE 1-2
SITE MAP
SMALL WEAPONS STORAGE AND
CLEANING COMPOUND, BUILDING 1378
PARCEL 174(7)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

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compound. Weapons are cleaned using Safety Kleen. The chemicals used for cleaning activities are stored in the locked corrugated iron shed on site. Used chemicals are disposed of by a subcontractor for the Army (Safety Kleen, Inc.). Although the EBS states that small caliber weapons are stored at the site, evidence during a site visit and communication with the Alabama National Guard personnel indicate that buildings at the site are not used or suitable for weapons storage. There has not been any reported releases at the site (Environmental Science and Engineering, Inc. [ESE], 1998).

Site elevation is approximately 752 feet. The site is generally flat with a swale and man-made ditch located to the west and north of the site, respectively. The soils found at this site fall into the Rarden series. The mapping unit consists of shallow, 2-to 4-inch-thick, yellowish-red to dark-brown silty clay loam having mild slopes easily susceptible to erosion. Runoff is high and shows shallow gullies (U.S. Department of Agriculture, 1961). Site specific geology and hydrogeology are currently not available, but data will be gathered during site investigation activities.

1.3 Scope of Work

The scope of work for activities associated with the SI at the Small Weapons Storage and Cleaning Compound, Building 1378 site (USACE, 1998), includes the following tasks:

- Develop the SFSP attachment.
- Develop the SSHP attachment.
- Collect four surface soil samples, four subsurface soil samples, two groundwater samples, three surface water samples, and three sediment samples to determine whether site-specific chemicals are present at the Small Weapons Storage and Cleaning Compound, Building 1378 and to provide data to determine any future planned corrective measures and closure activities.

At completion of the field activities and sample analyses, draft and final SI summary reports will be prepared to evaluate the absence or presence of site specific chemicals and to recommend further actions if appropriate.

2.0 Summary of Existing Environmental Studies

ESE conducted an environmental baseline survey (EBS) to document current environmental conditions of all FTMC property (ESE, 1998). The study identified sites that, based on available information, have no history of contamination, and comply with U.S. Department of Defense (DOD) guidance on fast-track cleanup at closing installations. The EBS also provides a baseline picture of FTMC properties by identifying and categorizing the properties by seven criteria.

1. Areas where no storage, release, or disposal (including migration) has occurred.
2. Areas where only storage has occurred.
3. Areas of contamination below action levels.
4. Areas where all necessary remedial actions have been taken.
5. Areas of known contamination with removal and/or remedial action underway.
6. Areas of known contamination where required response actions have not been taken.
7. Areas that are not evaluated or require further evaluation.

The EBS was conducted in accordance with the Community Environmental Response Facilitation Act (CERFA) (CERFA-Public Law 102-426) protocols and DOD policy regarding contamination assessment. Record searches and reviews were performed on all reasonably available documents from FTMC, Alabama Department of Environmental Management (ADEM), U.S. Environmental Protection Agency (EPA) Region IV, and Calhoun County, as well as a database search of Comprehensive Environmental Response, Compensation, and Liability Act-regulated substances, petroleum products, and Resource Conservation and Recovery Act-regulated facilities. Available historic maps and aerial photographs were reviewed to document historic land uses. Personal and telephone interviews of past and present FTMC employees and military personnel were conducted. In addition, visual site inspections were conducted to verify conditions of specific property parcels. The Small Weapons Storage and Cleaning Compound, Building 1378 was identified as a Category 7 CERFA parcel, where previous investigations have not been conducted and further evaluation was needed.

3.0 Site-Specific Data Quality Objectives

3.1 Overview

The data quality objectives (DQO) process is followed to establish data requirements. This process ensures that the proper quantity and quality of data are generated to support the decision-making process associated with the action selection for the Small Weapons Storage and Cleaning Compound, Building 1378 site. This section incorporates the components of the DQO process described in the EPA publication EPA 540-R-93-071, *Data Quality Objectives Process for Superfund, Interim Final Guidance* (EPA, 1993). The DQO process as applied to the Small Weapons Storage and Cleaning Compound, Building 1378 site is described in more detail in Section 4.3 of the WP (IT, 1998b). Table 3-1 provides a summary of the factors used to determine the appropriate quantity of samples, and the procedures necessary to meet the objectives of the SI and to establish a basis for future action at this site.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Chapter 4.0 in this SFSP and Table 6-1 in the QAP. Data will be reported and evaluated in accordance with U.S. Army Corps of Engineers South Atlantic Savannah (CESAS) Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). Chemical data will be reported via hard copy data packages by the laboratory using Contract Laboratory Program (CLP)-like forms. These packages will be validated in accordance with EPA National Functional Guidelines by Level III criteria.

3.2 Data Users and Available Data

The intended data users and available data related to the SI at the Small Weapons Storage and Cleaning Compound, Building 1378 site, presented in Table 3-1, have been used to formulate a conceptual site exposure model (CSEM) presented in Section 3.3. This CSEM was developed to support the preparation of this SFSP, which is necessary to meet the objectives of these activities and to establish a basis for future action at the site. The data users for the data and information generated during field activities are primarily the EPA, USACE, ADEM, FTMC, and USACE supporting contractors. This SFSP, along with the necessary companion documents, has been designed to provide the regulatory agencies with sufficient detail to reach a determination as to the adequacy of the scope of work. The program has also been designed to provide the level of defensible data and information required to confirm or rule out the existence of residual potential site-specific chemical (PSSC) in the site media.

Table 3-1

Summary of Data Quality Objectives
Small Weapons Storage and Cleaning Compound, Building 1378, Parcel 174(7)
Fort McClellan, Calhoun County, Alabama

Potential Data Users	Available Data	Conceptual Site Model	Media of Concern	Data Uses and Objectives	Data Types	Analytical Level	Data Quantity
EPA, ADEM USACE, DOD FTMC, IT Corporation Other Contractors Possible future land users	None	<u>Contaminant Source</u> Small weapons cleaning and storage compound, flammable and hazardous storage building <u>Migration Pathways</u> Infiltration to subsurface soil Infiltration and leaching to groundwater Runoff erosion from soil to surface water and sediment Dust emission and volatilization from soil Groundwater discharge to surface water <u>Potential Receptors</u> Current and future groundskeeper Future construction worker Future recreational site Future resident <u>PSSCs</u> Organic compounds Metals Lubricants	Surface Soil	SI to determine the presence or absence of PSSC in the site media	<u>Surface soil</u> TCL VOCs TCL SVOCs TAL Metals	Definitive + CESAS Level B data packages	4 direct-push soil samples + QC
			Subsurface Soil	Definitive quality data for future decision making	<u>Subsurface soil</u> TCL VOCs TCL SVOCs TAL Metals	Definitive + CESAS Level B data packages	4 direct-push soil samples + QC
			Groundwater		<u>Groundwater</u> TCL VOCs TCL SVOCs TAL Metals	Definitive + CESAS Level B data packages	2 direct-push groundwater samples + QC
			Surface water		<u>Surface water</u> TCL VOCs TCL SVOCs TAL Metals	Definitive + CESAS Level B data packages	3 surface water samples + QC
			Sediment		<u>Sediment</u> TCL VOCs TCL SVOCs TAL Metals TOC Grain size	Definitive + CESAS Level B data packages	3 sediment samples +QC

ADEM - Alabama Department of Environmental Management.
 CESAS - Army Corps of Engineers South Atlantic Savannah.
 DOD - U.S. Department of Defense.
 EPA - U.S. Environmental Protection Agency.
 FTMC - Fort McClellan.
 PSSC - Potential site-specific chemical.
 QC - Quality control.

VOC - Volatile organic compound.
 SVOC - Semivolatile organic compound.
 TAL - Target analyte list.
 TCL - Target compound list.
 TOC - Total organic compound.
 USACE - U.S. Army Corps of Engineers.
 SI - Site investigation.

3.3 Conceptual Site Exposure Model

The CSEM provides the basis for identifying and evaluating potential risks to human health in the risk assessment. The CSEM includes all receptors and potential exposure pathways appropriate to all plausible scenarios. The CSEM facilitates consistent and comprehensive evaluation of risk to human health through graphically presenting all possible exposure pathways, including all sources, release and transport pathways, and exposure routes. In addition, the CSEM helps to ensure that potential pathways are not overlooked. The elements of a complete exposure pathway and CSEM are:

- Source (i.e., contaminated environmental) media
- Contaminant release mechanisms
- Contaminant transport pathways
- Receptors
- Exposure pathways.

Contaminant release mechanisms and transport pathways are not relevant for direct receptor contact with contaminated source media.

Parcel 174(7) is located in the northwest section of the Main Post. It is a fenced area covered with gravel. It includes three small buildings and is currently maintained as an active small weapons cleaning compound. Flammable and hazardous materials are stored in one of the buildings located in the northwest corner of the site.

Semivolatile organic compound (SVOC), volatile organic compound (VOC) and metals are the most likely chemicals of potential concern (COPC) at this site. Primary contaminant release, if any, was probably limited to leaks and spills that initially entered surface soil, or possibly surface water run-off. Potential contaminant transport pathways include infiltration to subsurface soil; infiltration and leaching to groundwater; erosion and runoff in surface water and sediment; dust emissions and volatilization into ambient air; and groundwater discharge to surface water.

Receptors included in the CSEM are the:

- Current and future groundskeeper: ground maintenance personnel currently work the area and could continue to do so in the future, although the area is slated for future open land use (FTMC, 1997)
- Future construction worker: despite the expected future open land use, because it is plausible that demolition or building crews could work at the site in the future

- Future recreational site user: because of the possibility of campers with the expected future open land use
- Future resident: scenario is considered for future purposes only because there are currently not any residents present at the site.

The only receptor scenarios excluded from the CSEM are the venison and fish consumption scenarios. The fish consumption scenario is excluded because the swale that carries surface water runoff from the west side of the site is insufficient to support fish or fishing that would establish a substantive ingestion pathway. The venison consumption scenario is excluded because this 1-acre fenced-in area covered with gravel could not possibly support substantive venison grazing activities.

Figure 3-1 provides a summary of relevant contaminant release and transport mechanisms, source and exposure media, and receptors and exposure pathways for this site.

3.4 Decision-Making Process, Data Uses, and Needs

The decision-making process consists of a seven-step process that is presented in detail in Section 4.3 of the WP and will be followed during the SI at the Small Weapons Storage and Cleaning Compound, Building 1378. Data uses and needs are summarized in Table 3-1.

3.4.1 Risk Evaluation

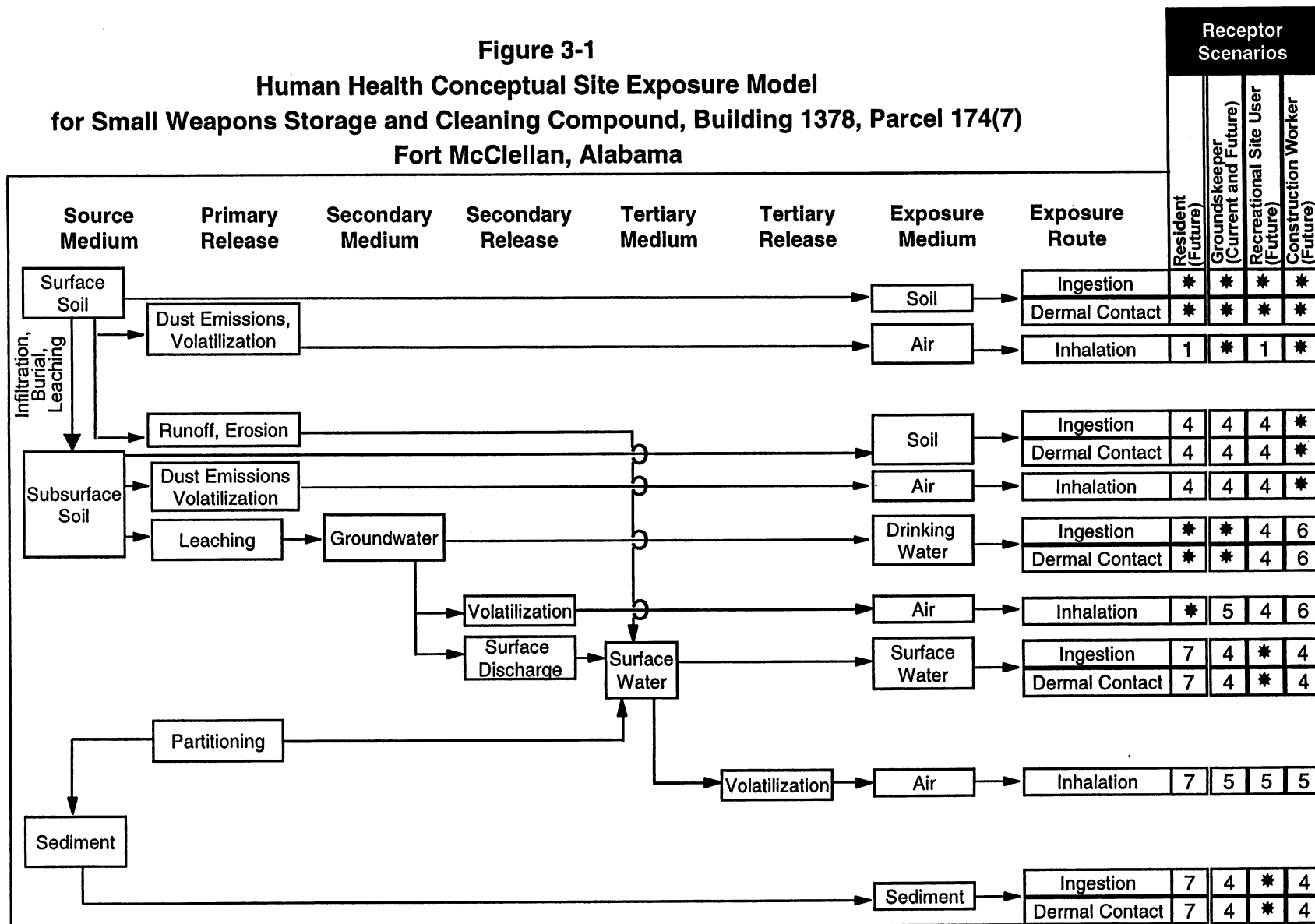
Confirmation of contamination at the Small Weapons Storage and Cleaning Compound, Building 1378 will be based on comparing detected site COPC to site-specific screening levels developed in the WP. EPA definitive data with CESAS Level B data packages will be used to achieve detection limits sufficient to determine whether or not the established guidance criteria are exceeded in site media. Definitive data will be adequate for confirming the presence of site contamination and for supporting a feasibility study and risk assessment.

Assessment of potential ecological risk associated with sites or parcels (e.g., surface water and sediment sampling, specific ecological assessment methods, etc.) will be addressed in the installation-wide work plan.

3.4.2 Data Types and Quality

Surface and subsurface soil, groundwater, surface water, and sediment will be sampled and analyzed to meet the objectives of the SI at the Small Weapons Storage and Cleaning Compound, Building 1378. Quality assurance/quality control (QA/QC) samples will be collected for all

Figure 3-1
Human Health Conceptual Site Exposure Model
for Small Weapons Storage and Cleaning Compound, Building 1378, Parcel 174(7)
Fort McClellan, Alabama



* = Complete exposure pathway quantified in SSSL development.

1 = Volatilization from undisturbed surface soil deemed insignificant; soil is likely to be paved or vegetated, reducing dust emissions to insignificant levels; inhalation pathway not quantified.

2 = This scenario is created to assess indirect (food chain) exposure to surface soil, surface water and sediment.

3 = Evaluated under venison and fish consumption scenario.

4 = Incomplete exposure pathway.

5 = Although theoretically complete, this pathway is judged to be insignificant.

6 = Although theoretically complete, these pathways are not quantified for the construction worker because SSSLs developed for the groundskeeper would be at least as restrictive.

7 = Although theoretically complete, SSSLs for these pathways are developed only for the recreational site user. SSSLs developed for the recreational site user may be used to estimate risk for this receptor.

sample types as described in Chapter 4.0 of this SFSP. Samples will be analyzed by EPA-approved SW-846 methods, where available; comply with EPA definitive data requirements; and be reported using hard copy data packages. In addition to meeting the quality needs of this SI, data analyzed at this level of quality are appropriate for all phases of site characterization, remedial investigation, and risk assessment.

3.4.3 Precision, Accuracy, and Completeness

Laboratory requirements of precision, accuracy, and completeness for this SI are provided in Chapter 9.0 of the QAP.

4.0 Field Activities

4.1 Utility Clearances

Prior to performing any intrusive sampling, a utility clearance will be performed at all locations where soil and groundwater samples will be collected, using the procedure outlined in Section 4.2.6 of the SAP. The site manager will mark the proposed locations with stakes, coordinate with the installation to clear the proposed locations for utilities, and obtain digging permits. Once the locations are cleared, the stakes will be labeled as cleared.

4.2 Environmental Sampling

The environmental sampling program during the SI at the Small Weapons Storage and Cleaning Compound, Building 1378 includes the collection of surface soil, subsurface soil, groundwater, surface water, and sediment samples for chemical analyses. These samples will be collected and analyzed to provide data for characterizing the site to determine the environmental condition of the site and any further action to be conducted at the site.

4.2.1 Surface Soil Sampling

A total of four surface soil samples will be collected from the Small Weapons Storage and Cleaning Compound, Building 1378.

4.2.1.1 Sample Locations and Rationale

Surface soil sampling rationale is provided in Table 4-1. A total of four surface soil samples will be collected from the Small Weapons Storage and Cleaning Compound, Building 1378. Surface soil samples will be collected from the upper 1 foot of soil at each sampling location. The proposed surface soil sampling locations are shown on Figure 4-1.

4.2.1.2 Sample Collection

Surface soil samples will be collected using the direct-push methodology specified in Section 4.7.1.1 of the SAP. Surface soil samples to be collected and their sample designations, depths, and required QA/QC sample quantities are listed in Table 4-2.

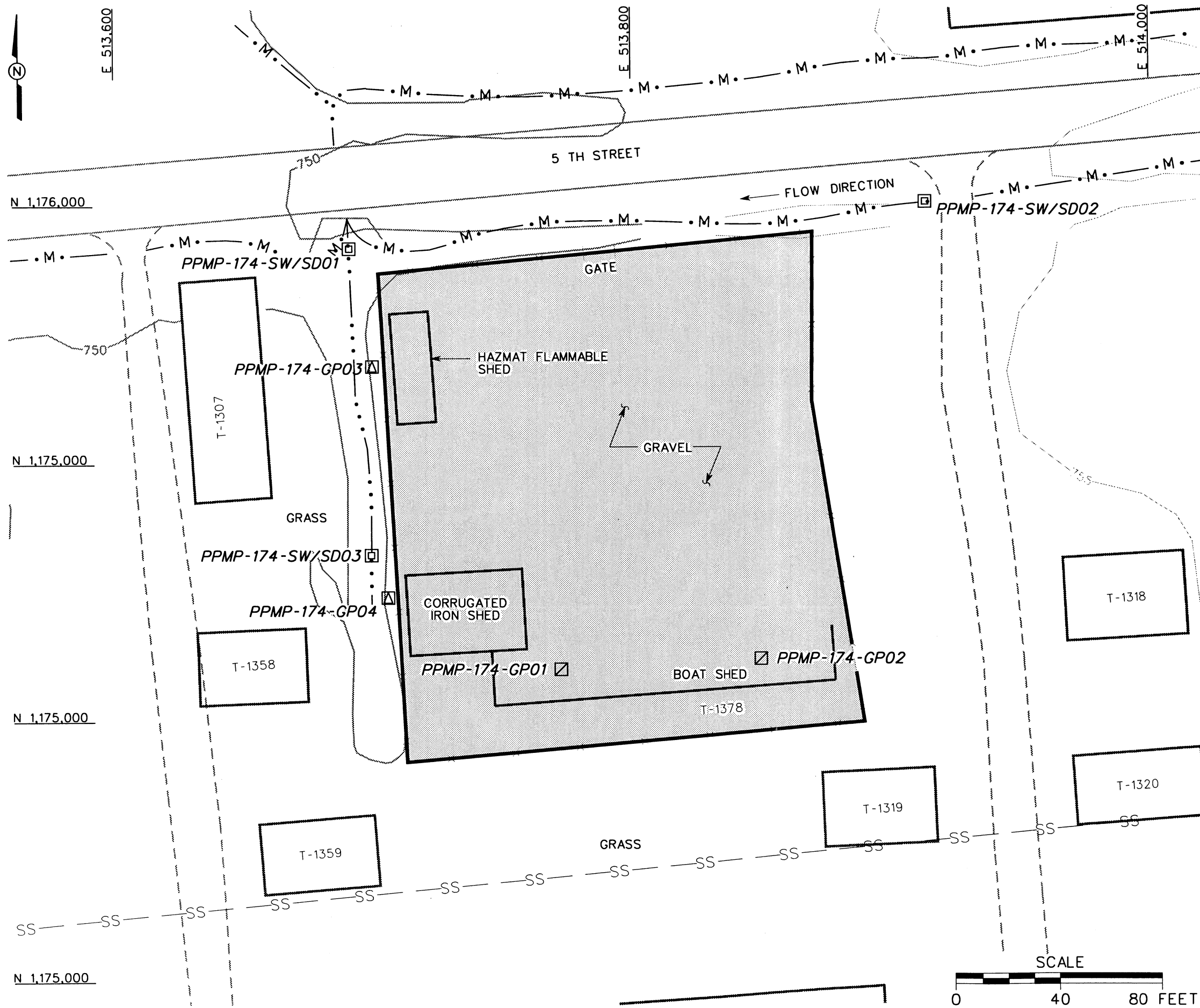
Surface soil samples collected at the site will be submitted for laboratory analyses of target compound list (TCL) VOCs, TCL SVOCs, and target analyte list (TAL) metals.

Table 4-1

**Sample Locations And Rationale
Small Weapons Storage and Cleaning Compound, Building 1378, Parcel 174(7)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Media	Sample Location Rationale
PPMP-174-GP01	Surface soil and subsurface soil	Samples collected from the small weapons cleaning area to determine presence or absence of contamination from cleaning activities.
PPMP-174-GP02	Surface soil and subsurface soil	Samples collected from the small weapons cleaning area to determine presence or absence of contamination from cleaning activities.
PPMP-174-GP03	Surface soil, subsurface soil, and groundwater	Samples collected from the immediate vicinity of the flammable hazardous material storage locker (Building 1377) to determine presence or absence of contamination from storage activities.
PPMP-174-GP04	Surface soil, subsurface soil, and groundwater	Samples collected from the immediate vicinity of the storage shed area (Building 1376) to determine presence or absence of contamination from storage activities.
PPMP-174-SW/SD01	surface water and sediment	Sample location is a potential downgradient sink for contaminants from the site. Evidence of PSSC mobility at any point within the site would likely be integrated at this location.
PPMP-174-SW/SD02	surface water and sediment	Sample to be collected from an upgradient location to determine if PSSC originate from sources other than the site.
PPMP-174-SW/SD03	surface water and sediment	Sample location is downstream of corrugated iron shed to determine if storage shed is source of contamination.

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- LEGEND**
- UNIMPROVED ROADS AND PARKING
 - PAVED ROADS AND PARKING
 - BUILDING
 - TOPOGRAPHIC CONTOURS
 - PARCEL BOUNDARY
 - BRIDGE
 - CULVERT WITH HEADWALL
 - SURFACE DRAINAGE / CREEK
 - MANMADE SURFACE DRAINAGE FEATURE
 - FENCE
 - SANITARY SEWER LINE
 - PROPOSED SURFACE WATER/SEDIMENT SAMPLE
 - PROPOSED SURFACE AND SUBSURFACE SOIL SAMPLE
 - PROPOSED GROUNDWATER, SURFACE AND SUBSURFACE SOIL SAMPLE

FIGURE 4-1
PROPOSED SAMPLE LOCATIONS
SMALL WEAPONS STORAGE AND
CLEANING COMPOUND, BUILDING 1378
PARCEL 174(7)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
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Table 4-2

**Surface and Subsurface Soil Sample Designations and QA/QC Sample Quantities
Small Weapons Storage and Cleaning Compound, Building 1378, Parcel 174(7)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
PPMP-174-GP01	PPMP-174-GP01-SS-KU0001-REG	0-1.0				TCL VOCs, TCL SVOCs, TAL Metals
	PPMP-174-GP01-DS-KU0002-REG	^a				
PPMP-174-GP02	PPMP-174-GP02-SS-KU0003-REG	0-1.0			PPMP-174-GP02-SS-KU0004-MS	TCL VOCs, TCL SVOCs, TAL Metals
	PPMP-174-GP02-DS-KU0004-REG	^a			PPMP-174-GP02-SS-KU0004-MSD	
PPMP-174-GP03	PPMP-174-GP03-SS-KU0005-REG	0-1.0	PPMP-174-GP03-SS-KU0006-FD	PPMP-174-GP03-SS-KU0007-FS		TCL VOCs, TCL SVOCs, TAL Metals
	PPMP-174-GP03-DS-KU0008-REG	^a				
PPMP-174-GP04	PPMP-174-GP04-SS-KU0009-REG	0-1.0				TCL VOCs, TCL SVOCs, TAL Metals
	PPMP-174-GP04-DS-KU0010-REG	^a				

^a Actual sample depth selected for analysis will be at the discretion of the on-site geologist and will be based on field observation.

MS/MSD - Matrix spike/matrix spike duplicate

QA/QC - Quality assurance/quality control

SVOC - Semivolatile organic compound

TAL - Target analyte list

TCL - Target compound list

VOC - Volatile organic compound

4.2.2 Subsurface Soil Sampling

A total of four subsurface soil samples will be collected from the Small Weapons Storage and Cleaning Compound, Building 1378.

4.2.2.1 Sample Locations and Rationale

Subsurface soil sampling rationale is provided in Table 4-1. Four subsurface soil samples will be collected from the Small Weapons Storage and Cleaning Compound, Building 1378. The proposed subsurface soil sampling locations are shown on Figure 4-1.

4.2.2.2 Sample Collection

Subsurface soil samples will be collected using direct-push methodology specified in Sections 4.7.1.1 and 4.9.1.1 of the SAP. Subsurface soil samples will be collected continuously from 1 foot to 12 feet below land surface or until either groundwater or refusal is reached, whichever occurs first. Samples from the entire length of the boring will be field screened using a photoionization detector (PID). Samples will be collected for headspace screening as specified in Section 4.15 of the SAP. The sample from each boring exhibiting the highest reading on a PID will be sent to the laboratory for chemical analysis. The soil sample at the deepest depth interval will be submitted to the laboratory for chemical analysis if PID readings exceeding background (ambient) level are not detected. Subsurface soil samples to be collected at the site and their sample designations, depths, and required QA/QC sample quantities are listed in Table 4-2. Subsurface soil samples collected at the site will be submitted for laboratory analyses of TCL VOCs, TCL SVOCs, and TAL metals.

4.2.3 Groundwater Sampling

Two groundwater samples will be collected from the Small Weapons Storage and Cleaning Compound, Building 1378.

4.2.3.1 Sample Locations and Rationale

Groundwater sampling rationale is presented in Table 4-1. Two groundwater samples will be collected from direct-push temporary wells installed at the Small Weapons Storage and Cleaning Compound, Building 1378. The proposed groundwater sampling locations are presented on Figure 4-1.

4.2.3.2 Sample Collection

Two groundwater samples will be collected from direct-push borings completed as direct-push temporary wells. The direct-push temporary wells will be advanced to a depth sufficient to allow

collection of a groundwater sample at each location. Sample collection procedures will be performed as outlined in Sections 4.7.1.1 of the SAP. Prior to sampling the newly installed direct-push temporary wells, static water levels will be measured from the wells at the site to assess the groundwater flow in the underlying aquifer. Water level measurements will be performed as outlined in Section 4.18 of the SAP.

At direct-push temporary well locations, where either refusal is reached before encountering water or direct-push temporary wells do not yield sufficient groundwater for laboratory analysis, conventional drilling methods will be utilized to install temporary monitoring wells. Temporary monitoring wells will be completed as specified in the addendum to Appendix C of the SAP, Section C.5.7 (IT, 1998c).

Groundwater samples to be collected and their sample designations, depths, and required QA/QC sample quantities, are listed in Table 4-3. Groundwater samples collected at the site will be submitted for laboratory analyses of TCL VOCs, TCL SVOCs, and TAL metals.

4.2.4 Surface Water Sampling

Three surface water samples will be collected from the Small Weapons Storage and Cleaning Compound, Building 1378.

4.2.4.1 Sample Locations and Rationale

Surface water sampling rationale is presented in Table 4-1. Three surface water samples will be collected from a swale and drainage ditch that borders the Small Weapons Storage and Cleaning Compound, Building 1378. The proposed sampling locations are shown on Figure 4-1.

4.2.4.2 Sample Collection

Surface water samples will be collected in accordance with the procedures specified in Section 4.9.1.3 of the SAP. Surface water samples to be collected and the sample designation, depth, and required QA/QC sample quantities, are listed in Table 4-4. Surface water samples collected at the site will be submitted for laboratory analyses of TCL VOCs, TCL SVOCs, and TAL metals.

4.2.5 Sediment Sampling

Three sediment samples will be collected from the Small Weapons Storage and Cleaning Compound, Building 1378 site.

Table 4-3

**Groundwater Sample Designations and QA/QC Sample Quantities
Small Weapons Storage and Cleaning Compound, Building 1378, Parcel 174(7)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
PPMP-174-GP01	PPMP-174-GP01-GW-KU3001-REG	a	PPMP-174-GP03-GW-HU3002-FD	PPMP-174-GP03-GW-KU3003-FS		TCL VOCs, TCL SVOCs, TAL Metals
PPMP-174-GP02	PPMP-174-GP02-GW-KU3004-REG	a			PPMP-174-GP04-GW-KU3004-MS PPMP-174-GP04-GW-KU3004-MSD	TCL VOCs, TCL SVOCs, TAL Metals

^aSample depth will depend on where sufficient first water is encountered to collect a water sample.

MS/MSD - Matrix spike/matrix spike duplicate.

QA/QC - Quality assurance/quality control.

TAL - Target analyte list.

TCL - Target compound list.

VOC - Volatile organic compound.

Table 4-4

**Surface Water and Sediment Sample Designations and QA/QC Sample Quantities
Small Weapons Storage and Cleaning Compound, Building 1378, Parcel 174(7)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
PPMP-174-SW/SD01	PPMP-174-SW/SD01-SW-KU2001-REG	N/A	PPMP-174-SW/SD01-SW-KU2002-FD	PPMP-174-SW/SD01-SW-KU2003-FS		TCL VOCs, TCL SVOCs, TAL Metals, w/TOC and Grain Size (for sediment only)
	PPMP-174-SW/SD01-SD-KU1001-REG	0-0.5				
PPMP-174-SW/SD02	PPMP-174-SW/SD02-SW-KU2004-REG	N/A			PPMP-174-SW/SD02-SW-KU2004-MS	TCL VOCs, TCL SVOCs, TAL Metals, w/TOC and Grain Size (for sediment only)
	PPMP-174-SW/SD02-SD-KU1002-REG	0-0.5			PPMP-174-SW/SD02-SW-KU2004-MSD	
PPMP-174-SW/SD03	PPMP-174-SW/SD03-SW-KU2005-REG	N/A				TCL VOCs, TCL SVOCs, TAL Metals, w/TOC and Grain Size (for sediment only)
	PPMP-174-SW/SD03-SD-KU1003-REG	0-0.5				

* Actual sample depth selected for analysis will be at the discretion of the on-site geologist and will be based on field observation.

MS/MSD - Matrix spike/matrix spike duplicate

QA/QC - Quality assurance/quality control

SVOC - Semivolatile organic compound

TAL - Target analyte list

TCL - Target compound list

TOC - Total organic carbon.

VOC - Volatile organic compound

4.2.5.1 Sample Locations and Rationale

Sediment sampling rationale is presented in Table 4-1. Three sediment samples will be collected from a swale and drainage ditch that borders the Small Weapons Storage and Cleaning Compound, Building 1378 site. Sediment samples will be collected from the same locations as the surface water samples. The proposed sediment sampling locations are shown on Figure 4-1.

4.2.5.2 Sample Collection

Sediment samples to be collected and the sample designation, depth, and required QA/QC sample quantities are listed in Table 4-4. Sediment samples will be collected in accordance with the procedures specified in Section 4.9.1.2 of the SAP. Sediment samples collected at the site will be submitted for laboratory analyses of TCL VOCs, TCL SVOCs, and TAL metals.

4.3 Decontamination Requirements

Decontamination will be performed on sampling and nonsampling equipment primarily to ensure that contaminants are not introduced into samples from location to location. Decontamination of sampling equipment will be performed in accordance with the procedures presented in Section 4.10.1.1 of the SAP. Decontamination of nonsampling equipment will be performed in accordance with the procedures presented in Section 4.10.1.2 of the SAP.

4.4 Surveying of Sample Locations

Sampling locations will be marked with pin flags, stakes, and/or flagging and will be surveyed using either global positioning system (GPS) or conventional civil survey techniques, as necessary to obtain the required level of accuracy. Horizontal coordinates will be referenced to the Alabama State Plane coordinate system, 1983 North American Datum (NAD83). Elevations will be referenced to the National Geodetic Vertical Datum of 1929 or the North American Vertical Datum of 1988 (soon to be established on site).

Horizontal coordinates for all soil and groundwater locations will be recorded using a GPS to provide accuracy within 1 meter. Because of the need to use temporary wells to determine water levels, a higher level of accuracy is required. Temporary wells will be surveyed to an accuracy of 0.1 foot for horizontal coordinates and 0.01 foot for elevations, using survey-grade GPS techniques and/or conventional civil survey techniques, as required.

Procedures to be used for GPS surveying are described in Section 4.3 of the SAP. Conventional land survey requirements are presented in Section 4.19 of the SAP.

4.5 Analytical Program

Samples collected at locations specified in this chapter will be analyzed for the specified suite of chemicals and elements, based on the history of the site usage, as well as EPA, ADEM, FTMC and USACE requirements. The specific suite of analyses to be performed is based on the PSSCs present historically at the site and EPA, ADEM, FTMC, and USACE requirements. Target analyses for samples collected from the Small Weapons Storage and Cleaning Compound, Building 1378 site consist of the following list of parameters:

- TCL VOCs – Method 5035/8260B
- TCL SVOCs – Method 8270C
- TAL Metals – Method 6010B/7000

In addition, the sediment samples will be analyzed for the following parameters:

- Total organic carbon – Method 9060
- Grain Size – ASTM D-421/D-422.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Table 4-5 in this SFSP and Table 6-1 in the QAP. Data will be reported and evaluated in accordance with CESAS Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). The chemical data will be reported via hard copy data packages by the laboratory using CLP-like forms. These packages and will be validated in accordance with EPA National Functional Guidelines by Level III criteria.

The on-site sample coordinator will provide sampling containers and preservatives, and coordinate sampling procedures to the field sampling crews in accordance with Table 5-1 in the QAP.

4.6 Sample Preservation, Packaging, and Shipping

Sample preservation, packaging, and shipping will follow the procedures specified in Section 4.13.2 of the SAP. Completed analysis request/chain-of-custody records will be secured and included with each shipment of coolers to:

Attn: Sample Receiving
Quanterra Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
Telephone: (423) 588-6401.

Table 4-5

Analytical Samples
Small Weapons Storage and Cleaning Compound, Parcel 174(7)
Fort McClellan, Calhoun County, Alabama

Parameters	Analysis Method	Sample Matrix	TAT Needed	Field Samples			QA/QC Samples ^a					Quanterra	QA Lab
				No. of Sample Points	No. of Events	No. of Field Samples	Field Dups (10%)	Splits w/ QA Lab (5%)	MS/MSD (5%)	Trip Blank (1/ship)	Eq. Rinse (1/wk/matrix)	Total No. Analysis	Total No. Analysis
Small Weapons Storage and Cleaning Compound - Parcel 174(7): 5 water matrix (2 groundwater, 3 surface water), 11 soil matrix: (4 surface, 4 subsurface, 3 sediment).													
TCL VOCs	8260B	water	normal	5	1	5	1	1	1		1	9	1
TCL SVOCs	8270C	water	normal	5	1	5	1	1	1		1	9	1
Tot TAL Metals	6010B7000	water	normal	5	1	5	1	1	1		1	9	1
TCL VOCs	8260B	soil	normal	11	1	11	1	1	1		1	15	1
TCL SVOCs	8270C	soil	normal	11	1	11	1	1	1		1	15	1
Tot TAL Metals	6010B/7000	soil	normal	11	1	11	1	1	1		1	15	1
TOC	9060	sediment	normal	3	1	3						3	
Grain Size	ASTM D-421/D-422	sediment	normal	3	1	3						3	
Former Smoke Area, South Slope of Morgan Mountain Subtotal:						54	6	6	6	0	6	78	6

^aField duplicate, QA split, and MS/MSD samples were calculated as a percentage of the field samples collected per site and were rounded up to the nearest whole number. Trip blank samples will be collected in association with water matrix samples for VOC analysis only. Assumed four field samples per day to estimate trip blanks. Equipment blanks will be collected once per event whenever sampling equipment is field decontaminated and re-used. They will be repeated weekly for sampling events that are anticipated to last more than 1 week. Assumed 20 field samples will be collected per week to estimate number of equipment blanks.

Ship samples to:

Quanterra Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
Attn: John Reynolds
Tel: 423-588-6401
Fax: 423-584-4315

USACE Laboratory split samples
are shipped to:

USACE South Atlantic Division Laboratory
Attn: Sample Receiving
611 South Cobb Drive
Marietta, Georgia 30060-3112
Tel: 770-919-5270

QA/QC - Quality assurance/quality control.
MS/MSD - Matrix spike/matrix spike duplicate.
VOC - Volatile organic compound.
SVOC - Semivolatile organic compound.

TAL - Target analyte list.
TCL - Target compound list.
TOC - Total organic carbon.

QA split samples collected for the USACE laboratory will be shipped to the following address:

Attn: Sample Receiving
USACE South Atlantic Division Laboratory
611 South Cobb Drive-3112
Marietta, Georgia 30060
Telephone: (770) 919-5270.

4.7 Investigation-Derived Waste Management

Management and disposal of the investigation-derived wastes (IDW) will follow procedures and requirements as described in Section 4.11 and Appendix D of the SAP. The IDW expected to be generated at the Small Weapons Storage and Cleaning Compound, Building 1378 will include decontamination fluids and disposable personal protective equipment. The IDW will be staged in the fenced area surrounding Buildings 335 and 336 while awaiting final disposal.

4.8 Site-Specific Safety and Health

Safety and health requirements for this SI are provided in the SSHP attachment for the Small Weapons Storage and Cleaning Compound, Building 1378, Parcels 174(7). The SSHP attachment will be used in conjunction with the SHP.

5.0 Project Schedule

The project schedule for the SI activities will be provided by the IT project manager to the Base Realignment and Closure Cleanup Team on a monthly basis.

6.0 References

Environmental Science and Engineering Inc. (ESE), 1998, ***Final Environmental Baseline Survey, Fort McClellan, Alabama***, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

Fort McClellan (FTMC), 1997, ***Fort McClellan Comprehensive Reuse Plan***, prepared under contract to the Calhoun County Commission, November.

IT Corporation (IT), 1998a, ***Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama***, August.

IT Corporation (IT), 1998b, ***Final Installation-Wide Work Plan, Fort McClellan, Calhoun County, Alabama***, August.

IT Corporation (IT), 1998c, Letter to Ellis Pope from Jeanne Yacoub, "Procedures for Temporary Residuum Monitoring Well Installation, Conversion, and Abandonment," November, 1998.

U.S. Army Corps of Engineers (USACE), 1998, ***Statement of Work for Task Order CK005, Modification No. 1, Site Investigations at Fort McClellan, Alabama, Including Ecological Screening Sites (Creeks and Tribes), and Removal of Indoor Firing Ranges***, May.

U.S. Army Corps of Engineers (USACE), 1994, ***Requirements for the Preparation of Sampling and Analysis Plans***, Engineer Manual EM 200-1-3, September 1.

U.S. Department of Agriculture, 1961, ***Soil Survey, Calhoun County, Alabama***, Soil Conservation Service, Series 1958, No. 9, September.

U.S. Environmental Protection Agency (EPA), 1993, ***Data Quality Objectives Process for Superfund, Interim Final Guidance***, EPA 540-R-93-071, September.

Site Investigation
Final
Site-Specific Field Sampling Plan Attachment
for the Former Motor Pool Area 1000
Parcels 150(7), 13(7) and 139(7)

Fort McClellan
Calhoun County, Alabama

Prepared for:

U.S. Army Corps of Engineers, Mobile District
109 St. Joseph Street
Mobile, Alabama 36602

Prepared by:

IT Corporation
312 Directors Drive
Knoxville, Tennessee 37923

Delivery Order CK005
Contract No. DACA21-96-D-0018
IT Project No. 774645

November 1998

Revision 1

Table of Contents

	Page
List of Tables	iii
List of Figures	iii
List of Acronyms	iv
Executive Summary	ES-1
1.0 Project Description	1-1
1.1 Introduction	1-1
1.2 Site Description	1-1
1.3 Scope of Work	1-3
2.0 Summary of Previous Environmental Studies	2-1
3.0 Site-Specific Data Quality Objectives	3-1
3.1 Overview	3-1
3.2 Data Users and Available Data	3-1
3.3 Conceptual Site Exposure Model	3-2
3.4 Decision-Making Process, Data Uses, and Needs	3-3
3.4.1 Risk Evaluation	3-3
3.4.2 Data Types and Quality	3-4
3.4.3 Precision, Accuracy, and Completeness	3-4
4.0 Field Activities	4-1
4.1 Utility Clearances	4-1
4.2 Surface Geophysical Survey	4-1
4.2.1 Methodology and Instrumentation	4-1
4.2.2 Areal Coverage	4-3
4.2.3 Underground Storage Tank Exploratory Test Pits	4-4
4.3 Environmental Sampling	4-4
4.3.1 Surface Soil Sampling	4-5
4.3.1.1 Sample Locations and Rationale	4-5
4.3.1.2 Sample Collection	4-5
4.3.2 Subsurface Soil Sampling	4-5
4.3.2.1 Sample Locations and Rationale	4-5
4.3.2.2 Sample Collection	4-6

Table of Contents (Continued)

	Page
4.3.3 Groundwater Sampling	4-6
4.3.3.1 Sample Locations and Rationale.....	4-6
4.3.3.2 Sample Collection	4-7
4.3.4 Depositional Soil Sampling	4-7
4.3.4.1 Sample Locations and Rationale.....	4-7
4.3.4.2 Sample Collection.....	4-7
4.4 Decontamination Requirements	4-8
4.5 Surveying of Sample Locations	4-8
4.6 Analytical Program.....	4-8
4.7 Sample Preservation, Packaging, and Shipping	4-9
4.8 Investigation-Derived Waste Management	4-9
4.9 Site-Specific Safety and Health	4-9
5.0 Project Schedule.....	5-1
6.0 References	6-1

List of Tables

Number	Title	Follows Page
3-1	Summary of Data Quality Objectives	3-1
4-1	Sample Locations and Rationale	4-5
4-2	Surface Soil, Subsurface Soil, and Depositional Soil Sample Designations and QA/QC Sample Quantities	4-5
4-3	Groundwater Sample Designations and QA/QC Sample Quantities	4-6
4-4	Analytical Samples	4-9

List of Figures

Number	Title	Follows Page
1-1	Site Location Map, Former Motor Pool Area 1000, Parcels 150(7), 139(7), and 13(7)	1-1
1-2	Site Map, Former Motor Pool Area 1000, Parcels 150(7), 139(7), and 13(7)	1-1
3-1	Human Health Conceptual Site Exposure Model for Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7)	3-3
4-1	Proposed Sample Locations, Former Motor Pool Area 1000, Parcels 150(7), 139(7), and 13(7)	4-5

List of Acronyms

ADEM	Alabama Department of Environmental Management
bgs	below ground surface
CLP	Contract Laboratory Program
CERFA	Community Environmental Response Facilitation Act
CESAS	Corps of Engineers South Atlantic Savannah
CSEM	conceptual site exposure model
DOD	U.S. Department of Defense
DQO	data quality objective
EBS	environmental baseline survey
EM	electromagnetic
EPA	U.S. Environmental Protection Agency
EPIC	Environmental Photographic Interpretation Center
ESE	Environmental Science and Engineering, Inc.
E-W	east to west
FTMC	Fort McClellan
GPR	ground-penetrating radar
GPS	global positioning system
IDW	investigation-derived waste
IT	IT Corporation
N-S	north to south
PID	photoionization detector
PSSC	potential site-specific chemical
QA/QC	quality assurance/quality control
QAP	installation-wide quality assurance plan
SAP	installation-wide sampling and analysis plan
SFSP	site-specific field sampling plan
SI	site investigation
SSHP	site-specific safety and health plan
USACE	U.S. Army Corps of Engineers
WP	installation-wide work plan
USDA	U.S. Department of Agriculture
UST	underground storage tank

Executive Summary

In accordance with Contract No. DACA21-96-D-0018, Delivery Order CK005, IT Corporation (IT) will conduct site investigation activities at the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7), at Fort McClellan (FTMC), Calhoun County, Alabama, to determine the presence or absence of potential site-specific chemicals at this site. The purpose of this site-specific field sampling plan (SFSP) is to provide technical guidance for sampling activities at the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7).

The Former Motor Pool Area 1000, Parcel 150(7), 13(7), and 139(7) is located in the north central area of the FTMC Main Post. Parcel 150(7) is the current site of the Truman Gymnasium (Building 1012) and an indoor swimming pool. The Former Motor Pool Area 1000 comprises an area of approximately 5 acres between 4th Avenue and 5th Avenue. Building 1012 was heated with heating oil when first built in 1977, but is now heated with natural gas (Environmental Science and Engineering, Inc. [ESE], 1998). There were two 5,000-gallon steel underground storage tanks (UST) (Parcel 13[7]) installed in 1977 when the building was built. One of the USTs was removed sometime around 1990 to 1991 (ESE, 1998). A closure report could not be found in the files (ESE, 1998). Also, one of the 5,000-gallon heating oil USTs near the southwest corner of Building 1012 was removed and a replacement 5,000-gallon UST was installed in October 1996. Currently, this UST remains on site. There is an area in the parking lot near the southeast corner of Building 1012 that appears to be location of a possible excavation (Figure 1-2). This area may have been the location of the second heating oil UST, before it was removed. It appears that the site was razed and leveled prior to erecting Building 1012 and completing the surrounding parking lot. Therefore, none of the original surface soil exists.

Historic operations as a former motor pool area at this site are believed to have been primarily vehicle storage. There is not any information available concerning dates or details of operations at this motor pool (ESE, 1998). The site may have contained a vehicle maintenance area, wash rack and fuel and waste oil tanks that were typical of FTMC motor pool areas. A review of available aerial photographs, including the photographs prepared by the Environmental Photographic Interpretation Center (EPIC) (EPA, 1990), did not reveal much additional information other than showing several unidentifiable buildings previously standing where Truman Gymnasium is currently. The area southeast of Truman Gymnasium appears to have been an open area, possibly used for parking or staging of vehicles or equipment; however, little was observed in this area on the available photographs.

Former Motor Pool Area 1000 was also the site of a FTMC gas station (Building 1094, Parcel 139[7]) (ESE, 1998). There is not any evidence of a building foundation to mark the location of the former gas station (ESE, 1998). A review of available aerial photographs, including the photographs prepared by the EPIC (EPA, 1990), did not reveal the location of the former gas station. There are not any closure reports for USTs at this site on file with FTMC or Alabama Department of Environmental Management and the status of the USTs is unknown (ESE, 1998). There was not any evidence of the former gas station or probable associated USTs observed during IT's June 1998 site visit.

Specifically, IT will perform a geophysical survey over the northern one-third of the site to determine the location of any existing USTs that were in use when the site contained a gas station prior to erecting Truman Gymnasium. IT will collect one surface soil sample, eleven subsurface soil samples, seven groundwater samples, and two depositional soil samples at this site. The geologist will use the geophysical survey results to determine some of the locations of the samples. Potential contaminant sources at the Former Motor Pool Area 1000 site include heating oil and other petroleum products (gasoline, diesel, oils and lubricants). Chemical analyses of the samples collected during the field program will include volatile organic compounds, semivolatile organic compounds, and metals. Results from these analyses will be compared with site-specific screening levels specified in the installation-wide work plan (WP) and regulatory agency guidelines.

This SFSP attachment to the installation-wide sampling and analysis plan (SAP) for the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7) will be used in conjunction with the site-specific safety and health plan (SSHP), and the WP and SAP. The SAP includes the installation-wide safety and health plan, waste management plan, and quality assurance plan. Site-specific hazard analyses are included in the SSHP.

1.0 Project Description

1.1 Introduction

The U.S. Army is conducting studies of the environmental impact of suspected contaminants at Fort McClellan (FTMC) in Calhoun County, Alabama, under the management of the U.S. Army Corps of Engineers (USACE)-Mobile District. The USACE has contracted IT Corporation (IT) to provide environmental services for the site investigation (SI) of the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7) under Delivery Order CK005, Contract No. DACA21-96-D-0018.

This site-specific field sampling plan (SFSP) attachment to the installation-wide sampling and analysis plan (SAP) (IT, 1998a) for FTMC has been prepared to provide technical guidance for sample collection and analysis at the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7). This SFSP will be used in conjunction with the site-specific safety and health plan (SSHP) developed for the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7), and the installation-wide work plan (WP) (IT, 1998b) and SAP. The SAP includes the installation-wide safety and health plan (SHP), waste management plan, and quality assurance plan (QAP).

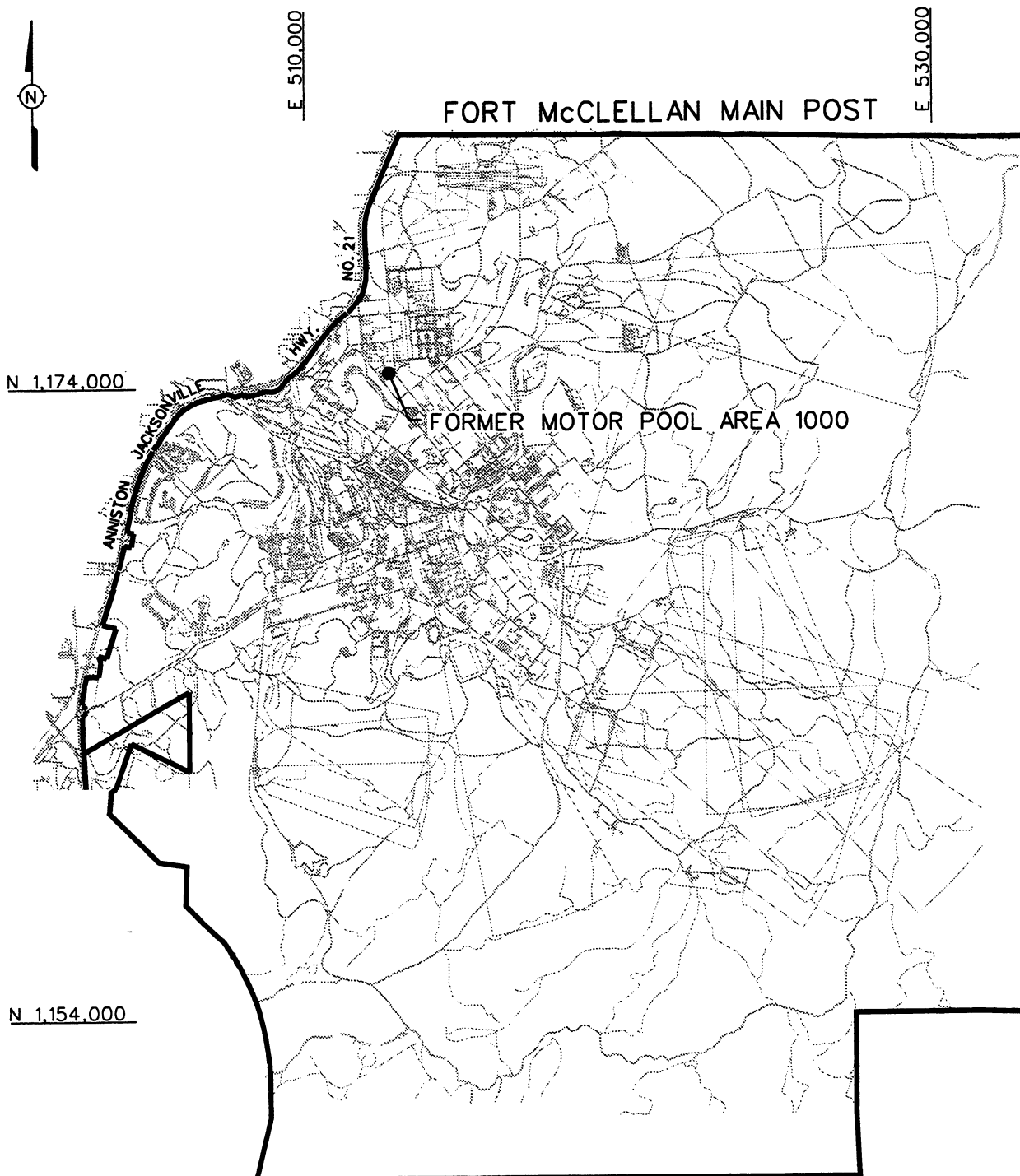
1.2 Site Description

The Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7) is located in the north central area of the FTMC Main Post (Figure 1-1). Parcel 150(7) is the current site of the Truman Gymnasium (Building 1012) and an indoor swimming pool. The Former Motor Pool Area 1000 comprises an area of approximately 5 acres between 4th Avenue and 5th Avenue (Figure 1-2). Building 1012 was heated with heating oil when first built in 1977, but is now heated with natural gas (Environmental Science and Engineering, Inc. [ESE], 1998). There were two 5,000-gallon steel underground storage tanks (UST) (Parcel 13[7] installed in 1977) when the building was built. One of the USTs was removed sometime around 1990 to 1991 (ESE, 1998). A closure report could not be found in the files (ESE, 1998). One of the 5,000-gallon heating oil USTs near the southwest corner of Building 1012 was removed and a replacement 5,000-gallon UST was installed in October 1996. Currently, this UST remains on site. There is an area in the parking lot near the southeast corner of Building 1012 that appears to be a location of a possible excavation (Figure 1-2). The 1954 aerial photograph (U.S. Environmental Protection Agency [EPA], 1990) shows the outline of a large building in the northwest corner of Parcel 150(7). The approximate location of the building has been outlined in Figure 1-2, however, there is nothing of the building remaining. This area may have been the location of the second UST, before it

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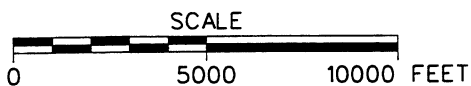
FORT McCLELLAN BOUNDARY

FIGURE 1-1

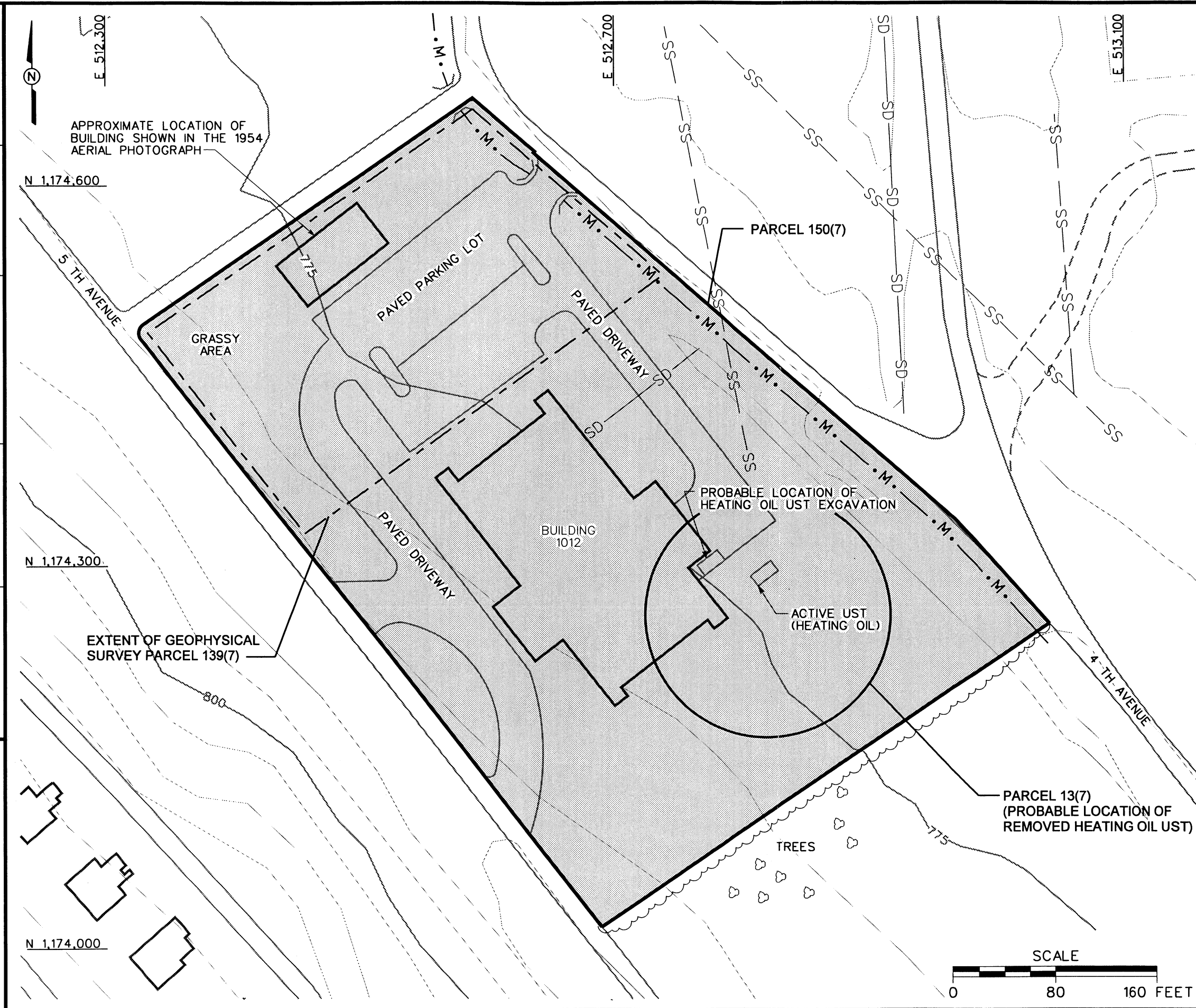
SITE LOCATION MAP

FORMER MOTOR POOL AREA 1000
PARCELS 150(7), 139(7), AND 13(7)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018



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LEGEND

- UNIMPROVED ROADS AND PARKING
- PAVED ROADS AND PARKING
- BUILDING
- TOPOGRAPHIC CONTOURS
- TREES / TREELINE
- PARCEL BOUNDARY
- EXTENT OF PROPOSED GEOPHYSICAL SURVEY
- BRIDGE
- CULVERT WITH HEADWALL
- SURFACE DRAINAGE / CREEK
- MANMADE SURFACE DRAINAGE FEATURE
- SANITARY SEWER LINE
- STORM DRAINAGE LINE

FIGURE 1-2
SITE MAP
 FORMER MOTOR POOL AREA 1000
 PARCELS 150(7), 139(7), AND 13(7)

U. S. ARMY CORPS OF ENGINEERS
 MOBILE DISTRICT
 FORT McCLELLAN
 CALHOUN COUNTY, ALABAMA
 Contract No. DACA21-96-D-0018



was removed. It appears that the site was razed and leveled prior to erecting Building 1012 and completing the surrounding parking lot. Therefore, none of the original surface soil exists.

Historic operations as a former motor pool area at this site are believed to have been primarily vehicle storage. There is not any information available concerning dates or details of operations at this motor pools (ESE, 1998). The site may have contained features that were typical of FTMC motor pool areas. A review of available aerial photographs, including the photographs prepared by the Environmental Photographic Interpretation Center (EPIC) (EPA, 1990), did not reveal much additional information other than showing one unidentifiable building previously standing northeast of where Truman Gymnasium is currently (Figure 1-2). The area southeast of Truman Gymnasium appears to have been an open area, possibly used for parking or staging of vehicles or equipment; however, little was observed in this area in the available photographs.

Former Motor Pool Area 1000 was also the site of a FTMC gas station (Building 1094, Parcel 139[7]) (ESE, 1998). There is not any evidence of a building foundation to mark the location of the former gas station (ESE, 1998). A review of available aerial photographs, including the photographs prepared by the EPIC (EPA, 1990), did not reveal the location of an obvious former gas station. However, a large building (approximately 40 feet by 80 feet) is seen on the 1954 aerial photograph and no other buildings were seen on later photographs until Truman Gymnasium was built on the site. These FTMC gas stations were constructed in 1941 and were associated with former motor pool areas. The typical gas station buildings were of like construction, consisting of a 9 feet by 21 feet concrete foundation with corrugated steel walls. Usually, two fuel pumps were located on an island directly in front of each building, approximately 20 feet away. The original gas station plans called for two 10,000-gallon tanks at each location (ESE, 1998). Reportedly, the USTs for these gas stations were located in front of the building (ESE, 1998). There are not any closure reports for USTs at this site on file with FTMC or Alabama Department of Environmental Management (ADEM) and may not have been required at the time of closure (ESE, 1998). The status of the USTs associated with this former gas station site is unknown. Evidence of the former gas station or probable USTs was not found during IT's June 1998 site visit.

The site elevation is approximately 775 feet (National Geodetic Vertical Datum of 1929) with a very gentle slope across to the site from southwest to northeast. Shallow groundwater direction at the site is probably controlled by topography and probably flows to the northeast. The soils found at this site are composed of the Rarden series soils (U.S. Department of Agriculture

[USDA], 1961). This series consists of moderately well-drained, strongly acid to very strongly acid soils. These soils generally occur in large areas on wide shale ridges having slopes of 2 to 10 percent. These soils have developed from the residuum of shale and fine-grained, platy sandstone or limestone. In eroded areas, the surface soil is brown silt loam. The subsoil is yellowish-red clay or silty clay mottled with strong brown color. Concretions and fragments of sandstone, up to one-half inch diameter, are common on the surface and in the soil, however, the surface of some areas have sandstone gravel 3 inches in diameter.

Soils at this site fall into the Rarden silty clay loams (ReB3) (USDA, 1961). This mapping unit consists of severely eroded soils that have 2 to 6 percent slopes and a thin solum. The color of these surface soils (2- to 4-inch layer) is yellowish-red or dark-brown silty clay loam. The depth to bedrock is approximately 1.5 to 4 feet below ground surface (bgs). The depth to the water table is typically greater than 20 feet bgs.

1.3 Scope of Work

The scope of work for activities associated with the site investigation at the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7), specified by the statement of work (USACE, 1998), includes the following tasks:

- Develop the SFSP attachment.
- - Develop the SSHP attachment.
- Perform a geophysical survey over the northern one-third of the site to determine the locations of any existing USTs.
- Collect one surface soil sample, eleven subsurface soil samples, seven groundwater samples, and two depositional soil samples to determine whether potential site-specific chemicals (PSSC) are present at the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7), and to provide data to determine any future planned corrective measures and closure activities.

At completion of the field activities and sample analyses, draft and final SI summary reports will be prepared to evaluate the absence or presence of PSSC at this site, and to recommend further actions, if appropriate.

2.0 Summary of Previous Environmental Studies

An environmental baseline study (EBS) survey was conducted by ESE to document current environmental conditions of all FTMC property (ESE, 1998). The study was to identify sites that, based on available information, have no history of contamination and comply with U.S. Department of Defense (DOD) guidance for fast-track cleanup at closing installations. The EBS also provides a baseline picture of FTMC properties by identifying and categorizing the properties by seven criteria.

1. Areas where no storage, release, or disposal (including migration) has occurred.
2. Areas where only storage has occurred.
3. Areas of contamination below action levels.
4. Areas where all necessary remedial actions have been taken.
5. Areas of known contamination with removal and/or remedial action underway.
6. Areas of known contamination where required response actions have not been taken.
7. Areas that are not evaluated or require further evaluation.

The EBS was conducted in accordance with the Community Environmental Response Facilitation Act (CERFA) (CERFA-Public Law 102-426) protocols and DOD policy regarding contamination assessment. Record searches and reviews were performed on all reasonably available documents from FTMC, ADEM, EPA Region IV, and Calhoun County, as well as a database search of Comprehensive Environmental Response, Compensation, and Liability Act-regulated substances, petroleum products, and Resource Conservation and Recovery Act-regulated facilities. Available historic maps and aerial photographs were reviewed to document historic land uses. Personal and telephone interviews of past and present FTMC employees and military personnel were conducted. In addition, visual site inspections were conducted to verify conditions of specific property parcels.

One of the 5,000-gallon heating oil USTs near the southwest corner of Building 1012 was removed and a replacement 5,000-gallon UST was installed in October 1996 (SEMS, 1997). Apparently, there were not any samples collected during the UST removal because none were listed in the closure report. The UST excavation was extended to five feet below the bottom of

the UST excavation (no depth given) and groundwater was not encountered. Free product or petroleum odors were not encountered in the excavation. Currently, this UST remains on site. There was not any evidence of other previous studies performed at this site.

The Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7) is identified as a CERFA site and is a Category 7 area. The Former Motor Pool Area 1000 is now the location of a gymnasium and a swimming pool. As a former motor pool area, this CERFA site is a parcel where petroleum products were stored, and possibly released onto the site or to the environment, and/or were disposed of on site property. The Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7) lacks adequate documentation and, therefore, requires additional evaluation to determine the environmental condition of the parcel.

3.0 Site-Specific Data Quality Objectives

3.1 Overview

The data quality objectives (DQO) process is followed to establish data requirements. This process ensures that the proper quantity and quality of data are generated to support the decision-making process associated with the action selection for the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7). This section incorporates the components of the DQO process described in the EPA publication EPA 540-R-93-071 *Data Quality Objectives Process for Superfund, Interim Final Guidance* (EPA, 1993). The DQO process as applied to the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7) is described in more detail in Sections 3.2 and 4.3 of the WP (IT, 1998b). Table 3-1 provides a summary of the factors used to determine the appropriate quantity of samples, and the procedures necessary to meet the objectives of the site investigation and establish a basis for future action at this site.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Chapter 4.0 in this SFSP and Table 6-1 in the QAP. Data will be reported and evaluated in accordance with Corps of Engineers South Atlantic Savannah (CESAS) Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). Chemical data will be reported by the laboratory in Contract Laboratory Program (CLP)-like forms. These packages will be validated in accordance with EPA National Functional Guidelines by Level III criteria.

3.2 Data Users and Available Data

The intended data users and available data related to the site investigation at the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7), presented in Table 3-1, have been used to formulate a site-specific conceptual model presented in Section 3.3. This conceptual model was developed to support the preparation of this SFSP, which is necessary to meet the objectives of these activities and to establish a basis for future action at the site. The data users for the data and information generated during field activities are primarily the EPA, USACE, ADEM, FTMC, and the USACE supporting contractors. This SFSP, along with the necessary companion documents, has been designed to provide the regulatory agencies with sufficient detail to reach a determination as to the adequacy of the scope of work. The program has also been designed to provide the level of defensible data and information required to confirm or rule out the existence of residual PSSC in the site media.

Table 3-1

Summary of Data Quality Objectives
Site Investigation
Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7)
Fort McClellan, Calhoun County, Alabama

Potential Data Users	Available Data	Conceptual Site Model	Media of Concern	Data Uses and Objectives	Data Types	Analytical Level	Data Quantity
EPA, ADEM USACE, DOD FTMC, IT Corporation Other contractors, and possible future land users	None available	<u>Contaminant Source</u> Former motor pool facility and former gas station	<u>Surface Soil</u>	SI to confirm the presence or absence of contamination in the site media Definitive quality data for future decision making	<u>Surface Soil</u> TCL VOCs, TCL SVOCs, TAL metal.	Definitive data in CESAS Level B data packages	1 direct-push soil sample+ QC
		<u>Migration Pathways</u> Subsurface soil, infiltration and leaching to groundwater, dust emissions and volatilization to ambient air	<u>Subsurface Soil</u>		<u>Subsurface Soil</u> TCL VOCs, TCL SVOCs, TAL Metals	Definitive data in CESAS Level B data packages	11 direct-push soil samples + QC
		<u>Potential Receptors</u> Groundskeepers (current and future), construction workers (future), recreational site user (current and future), and residents (future)	<u>Groundwater</u>		<u>Direct-Push Groundwater</u> TCL VOCs, TCL SVOCs, TAL Metals	Definitive data in CESAS Level B data packages	7 direct-push groundwater samples + QC
		<u>PSSC</u> Diesel fuel, gasoline, waste oil, lubricants, other petroleum products; possibly solvents and metals	<u>Depositional Soil</u>		<u>Depositional Soil</u> TCL VOCs, TCL SVOCs, TAL Metals	Definitive data in CESAS Level B data packages	2 depositional soil samples + QC

ADEM - Alabama Department of Environmental Management.

CESAS - Corps of Engineers South Atlantic Savannah.

DOD - U.S. Department of Defense.

EPA - U.S. Environmental Protection Agency.

FTMC - Fort McClellan.

PSSC - Potential site-specific chemical.

QC - Quality control.

VOC - Volatile organic compound.

SVOC - Semivolatile organic compound.

TAL - Target analyte list.

TCL - Target compound list.

USACE - U.S. Army Corps of Engineers.

3.3 Conceptual Site Exposure Model

The conceptual site exposure model (CSEM) provides the basis for identifying and evaluating potential risks to human health, as required to support a risk assessment. The CSEM includes plausible receptor scenarios and potential exposure pathways. The CSEM graphically presents possible pathways, by which a potential receptor may be exposed, including sources, release and transport pathways, and exposure routes. In addition, it facilitates consistent and comprehensive evaluation of human health risks, and helps ensure that potential pathways are not overlooked. The elements necessary to construct a complete exposure pathway and develop the CSEM include:

- Source (i.e., contaminated environmental) media
- Contaminant release mechanisms
- Contaminant transport pathways
- Receptor scenarios
- Exposure pathways.

Contaminant release mechanisms and transport pathways are not relevant for direct receptor contact with a contaminated source media.

The Former Motor Pool Area 1000 is an approximately 5-acre site that currently hosts a large gymnasium, indoor swimming pool, and parking area. There is little information regarding the nature of operations or resultant contamination from the former motor pool that operated at this location. The site may have contained features that were typical of FTMC motor pool areas. There is a UST that contains heating oil at the site that was used in heating Building 1012. Furthermore, a gas station may have also operated at this site, and may have utilized two USTs that were typical with FTMC gas stations.

Residual contamination present at this site would likely be limited to subsurface contamination of soil and/or groundwater. It is probable that surface soil associated with prior activities at this site was likely removed during excavation for the current facility. Potential contaminant transport pathways include subsurface soil fugitive dust emissions, volatilization to air, and infiltration and leaching to groundwater. Relevant surface water and sediment media and pathways are not present.

Plausible receptors are addressed in the CSEM include:

- The resident scenario; to ensure that the investigation is adequately conservative.

- The groundskeeper scenario is considered for current purposes, because the facility is currently maintained by groundskeeping and maintenance personnel; and for future purposes because these activities are likely to continue.
- The construction worker scenario is considered for future purposes only, because the site is currently not under construction, but could undergo various types of construction in the future.
- The recreational site user scenario is considered for both current and future use scenarios, although current risks are minimal because exposure to surface soil is not presently at issue. This site is now primarily used as a recreational facility. This land use is scheduled to continue into the foreseeable future.
- The venison and fish consumption receptor scenarios are excluded because they are inconsistent with the current and anticipated future land use of the area.

A summary of relevant contaminant release and transport mechanisms, source and exposure media, and receptors and exposure pathways is provided in Table 3-1 and Figure 3-1.

3.4 Decision-Making Process, Data Uses, and Needs

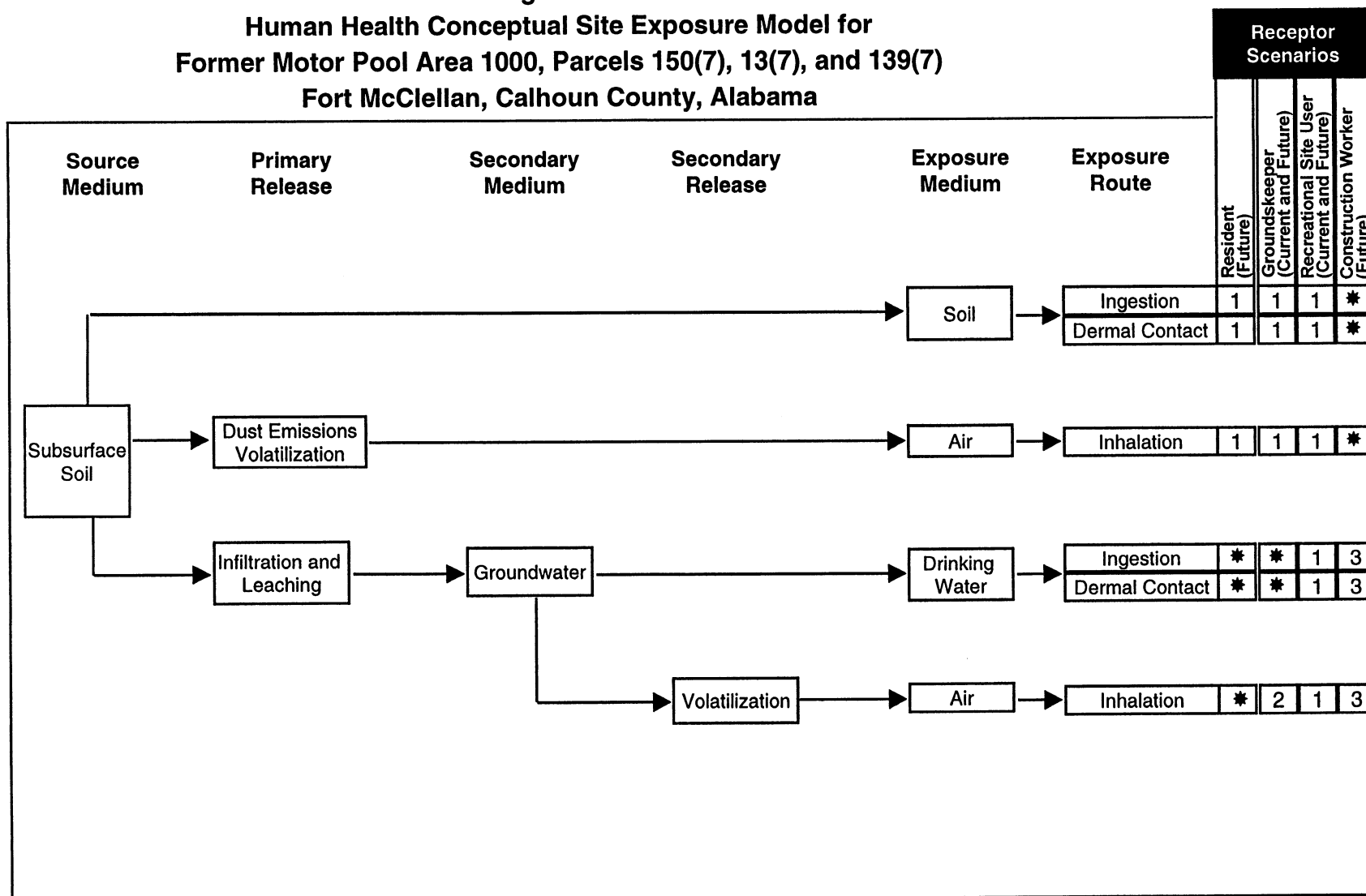
The decision-making process consists of a seven-step process that is presented in detail in Sections 3.2 and 4.3 of the WP and will be followed during the site investigation at the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7). Data uses and needs are summarized in Table 3-1.

3.4.1 Risk Evaluation

Confirmation of contamination at the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7), will be based on comparing detected site chemical concentrations with site-specific screening levels and background concentrations developed in the WP. EPA definitive data with CESAS Level B data packages will be used to achieve detection limits sufficient to determine whether or not the established guidance criteria are exceeded in site media. Definitive data will be adequate for confirming the presence of site contamination and for supporting a feasibility study and risk assessment.

Assessment of potential ecological risk associated with sites or parcels (e.g., surface water and sediment sampling, specific ecological assessment methods, etc.) will be addressed in the installation-wide WP.

Figure 3-1
Human Health Conceptual Site Exposure Model for
Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7)
Fort McClellan, Calhoun County, Alabama



* = Complete exposure pathway quantified in SSSL development.

1 = Incomplete exposure pathway.

2 = Although theoretically complete, this pathway is judged to be insignificant.

3 = Although theoretically complete, these pathways are not quantified for the construction worker because SSSLs developed for the groundskeeper would be at least as restrictive.

3.4.2 Data Types and Quality

Surface soil, subsurface soil, and groundwater will be sampled and analyzed to meet the objectives of the SI at the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7). Quality assurance/quality control (QA/QC) samples will be collected for all sample types as described in Chapter 4.0 of this SFSP. Samples will be analyzed by EPA-approved SW-846 methods, including Update III methods where applicable. Samples will be analyzed by EPA-approved SW-846 methods, where available; comply with EPA definitive data requirements; and be reported using hard copy data packages. In addition to meeting the quality needs of this SI, data analyzed at this level of quality are appropriate for all phases of site characterization, remedial investigation, and risk assessment.

3.4.3 Precision, Accuracy, and Completeness

Laboratory requirements of precision, accuracy, and completeness for this SI are provided in Chapter 9.0 of the QAP.

4.0 Field Activities

4.1 Utility Clearances

Prior to performing any intrusive sampling, a utility clearance will be performed at all locations where soil and groundwater samples will be collected, using the procedure outlined in Section 4.2.6 of the SAP (IT, 1998a). The site manager will mark the proposed locations with stakes, coordinate with the installation to clear the proposed locations for utilities, and obtain digging permits. Once the locations are cleared, the stakes will be labeled as cleared.

4.2 Surface Geophysical Survey

Geophysical survey techniques offer the best approach to locating potential USTs at the Former Motor Pool Area 1000 site and any other subsurface features related to USTs. A surface geophysical survey using magnetics, time- and frequency-domain electromagnetic (EM) induction, and ground-penetrating radar (GPR) techniques will be conducted over the northern one-third of Former Motor Pool Area 1000 to locate any existing USTs. The extent of the geophysical survey to be conducted is shown on Figure 4-1.

4.2.1 Methodology and Instrumentation

The magnetic surveys will be conducted using a Geometrics G-858G magnetic gradiometer (for collecting survey data) and a Geometrics G-856AX magnetometer or equivalent (for collecting base station data). The time-domain EM surveys will be conducted using a Geonics EM61 high-resolution metal detector coupled to an Omnidata DL720 digital data logger. Frequency-domain EM surveys will be conducted using a Geonics EM31 and EM34-3XL terrain conductivity meter, each coupled to an Omnidata DL720 digital data logger. Use of the G-858G and the EM31 is the preferred method of detecting tanks; however, in areas of significant cultural interference (e.g., structures, fences, reinforced concrete), the EM61 will be employed, since this system is less affected by surface culture. The EM34-3XL surveys will be conducted based on site-specific conditions in which deep burial of target materials is suspected. The GPR survey will be conducted using a Geophysical Survey Systems Inc. System-2P or equivalent, coupled to either 200- or 400-megahertz antennas, depending on site conditions and signal attenuation. If required, a Metrotech 9860-NRL EM utility locator or equivalent will be used to confirm the presence or absence of metallic subsurface utilities, which may be evident as linear anomalies in the EM31 or EM61 contour maps.

Geophysical survey procedures to be used to conduct the investigation, including survey control, equipment calibration, field base station and data validation, data processing and interpretation, and file tracking procedures, will be in accordance with the methods and procedures outlined in Chapter 4.0 of the SAP (IT, 1998a) and the following IT standard operating procedures for geophysical investigations:

- ITGP-001: Surface Magnetic Surveys
- ITGP-002: Surface Frequency-Domain EM Surveys
- ITGP-003: GPR Surveys
- ITGP-004: Surface Time-Domain Electromagnetic Surveys
- ITGP-005: Global Positioning System (GPS) Surveys.

The following tasks will be performed prior to conducting the survey:

- Review existing site surface and subsurface information (e.g., aerial photographs, utility maps, boring logs, etc.).
- Evaluate the potential influence of cultural features (e.g., overhead and subsurface utilities, fences, buildings, etc.).
- Conduct a visual inspection of the sites to verify the likely boundaries of the Former Motor Pool Area 1000.
- Conduct reconnaissance scans across the general area of the site with the magnetic and/or EM instruments to determine whether geophysical anomalies exist within the proposed survey areas and/or near the proposed boundaries. The geophysical survey area boundaries for the site will be chosen in the field based on these results.

Following visual inspection of the site and evaluation of reconnaissance scans with the instruments, a base grid will be staked throughout the site such that the resolution objectives of the investigation are achieved (typically 50- to 100-foot centers). The geophysics base grid will be referenced to the Alabama State Plane Coordinate System. The geophysics crew will establish control points on 20-foot centers throughout the site. The control points will be marked with surveyor's paint and/or plastic pinflags. To the extent possible, the grid will be oriented in the north to south (N-S) direction. If surface metal is present, it shall be removed where possible prior to collecting geophysical data.

After the survey grid is complete and control points are marked, all surface objects that could potentially affect the geophysical data (e.g., surface metal, variations in topography, overhead

utilities, etc.) will be mapped using the GPS so that anomalies caused by these objects can be correctly interpreted.

Geophysical data processing will be completed in the field following the survey. The EM and magnetic data will be presented as color-enhanced contour maps to facilitate recognition of subtle anomalies. Geophysical anomalies will be field-checked to verify their source as either surface culture or subsurface objects/debris. Surface source materials responsible for the observed geophysical anomalies will be documented on the contour maps. Anomalies caused by subsurface source materials the size of a UST will be marked in the field for further characterization with GPR. GPR will be used to discriminate between anomalies caused by USTs and those potentially caused by pits containing significant metal debris.

The conclusions from the geophysical survey at this site will be incorporated into the SI report and a geophysics report will be provided as an appendix to the SI report.

4.2.2 Areal Coverage

The Former Motor Pool Area 1000 site geophysical surveys will encompass the entire area shown in Figure 1-2. The following is a list of steps that will be performed at the site:

- G-858G magnetic gradiometer data will be collected at 0.5-second intervals (approximate 2.0- to 2.5-foot intervals) along N-S oriented survey lines spaced 10 feet apart.
- EM31 survey data will be collected at 5-foot intervals along N-S and east to west (E-W) oriented survey lines spaced 10 feet apart.
- EM34-3XL survey data will be collected, if necessary, using the 10- and 20-meter intercoil spacing configuration. Data will be collected in the vertical and horizontal dipole orientations at 2.5-meter intervals along N-S oriented survey lines spaced 2.5 meters apart.
- EM61 survey data will be collected at approximate 2.5-foot intervals along N-S and E-W oriented survey lines spaced 5 feet apart.
- GPR profile data will be collected to further characterize anomalies potentially representing the USTs seen in the magnetic and/or EM data. The orientation and length of the GPR lines will be chosen in the field to yield the most usable results.

- In areas of the site where linear EM31 or EM61 anomalies potentially representing pipelines/utilities are observed in the contoured data, the lines will be verified with the Metrotech 9860-NRL EM utility locator. Verification is necessary since the anomalous response caused by subsurface utilities may sometimes be mistaken for large buried metal objects. The locations of interpreted pipelines will be marked in the field with surveyor's paint and placed on the site map.

It is anticipated that three of the geophysical surveys described will be conducted: G-858G magnetic gradiometer, EM31, and EM61. However, as field conditions dictate, some or all of the survey techniques will be utilized. Due to the limited information about the Former Motor Pool Area 1000, the most efficient reconnaissance process will be to address the complete site with the geophysical surveys instead of targeting any specific part of the site.

4.2.3 Underground Storage Tank Exploratory Test Pits

Upon completion of the geophysical survey at each site, the data will be reviewed for possible anomalies indicative of USTs. Anomalies that are found of typical size and in logical areas for USTs (i.e., adjacent to typical FTMC gas station foundations) will be identified and labeled as USTs. Anomalies that are of typical sizes but not in logical locations for USTs will be labeled as potential USTs.

At each anomaly labeled as a potential UST, an exploratory test pit will be excavated to determine if the feature or anomaly detected is either a UST or is not a UST. These UST exploratory test pits will be excavated using a backhoe equipped with a 3-foot-wide bucket. If the presence of a UST is confirmed, the UST will not be removed. The excavated soil will be returned to the test pit and the location marked with a stake. The location and observations will be recorded in the field log.

If some type of material other than a UST is found, the type of material and location will be noted in the field log and the material will be placed back in the excavation. The location will be marked with a stake. If nothing is found in the excavation, the test pit will be backfilled with the excavated material. The label "possible tank" will be removed from the location of the geophysical anomaly.

4.3 Environmental Sampling

The environmental sampling program during the SI and the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7) includes the collection of one surface soil sample and eleven subsurface soil samples, seven groundwater samples, and two depositional soil samples for

chemical analyses. These samples will be collected and analyzed to provide data for characterizing the site to determine the environmental condition of the site and any further action to be conducted at the site.

4.3.1 Surface Soil Sampling

One surface soil sample will be collected from the Former Motor Pool Area 1000 site.

4.3.1.1 Sample Locations and Rationale

The surface soil sampling rationale is listed in Table 4-1. The proposed sampling location is shown in Figure 4-1. The surface soil sample designation and required QA/QC sample requirements are summarized in Table 4-2. The final soil boring sampling location will be determined in the field by the on-site geologist based on actual field conditions.

4.3.1.2 Sample Collection

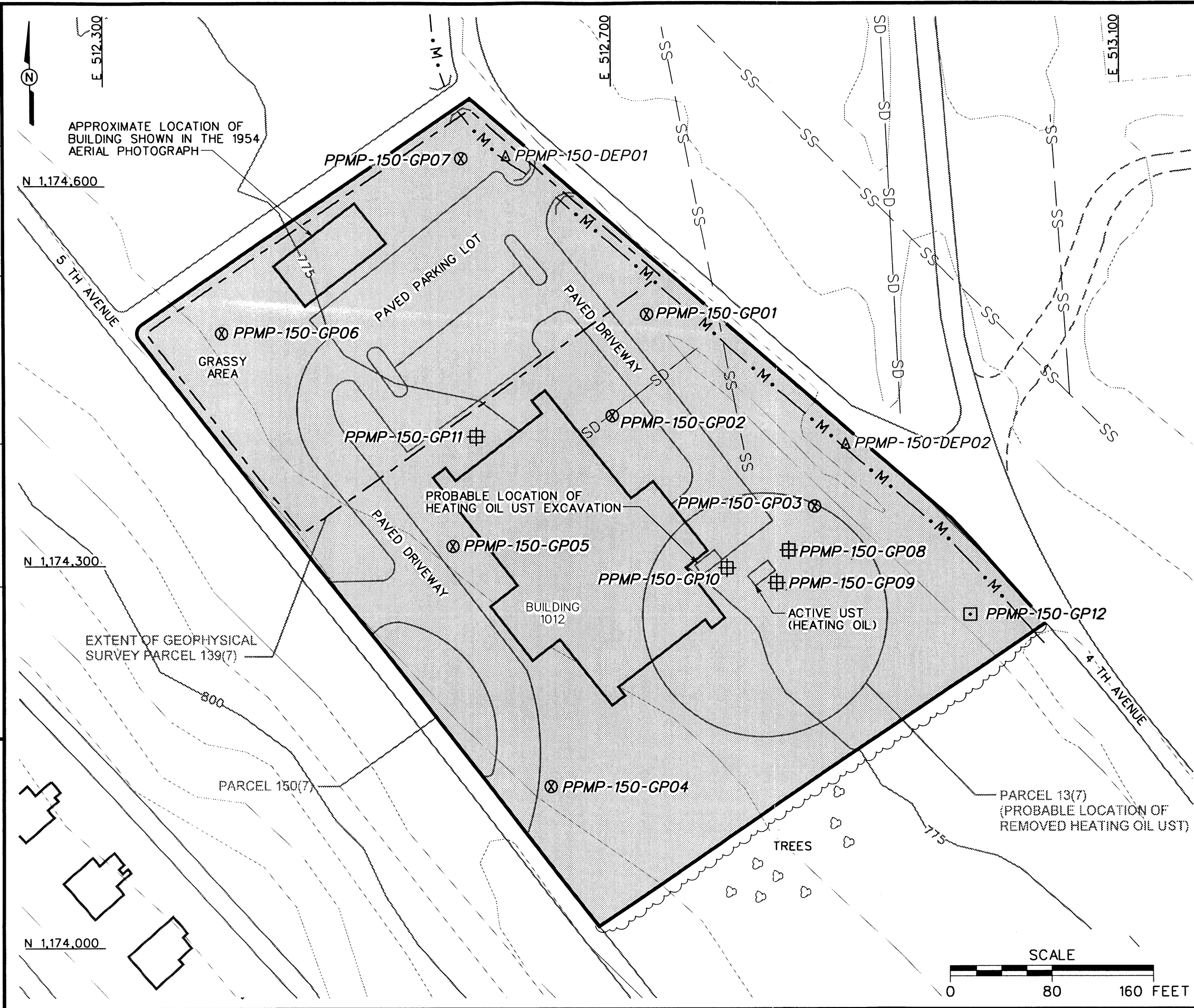
The surface soil sample will be collected from the upper 1 foot of soil by direct-push methodology as specified in Section 4.7.1.1 of the SAP. The collected soil sample will be screened using a photoionization detector (PID) in accordance with Section 4.15 of the SAP. The surface soil sample will be screened for information purposes only. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1, of the QAP. Sample documentation and chain-of-custody will be recorded as specified in Section 4.13 of the SAP. The sample will be analyzed for the parameters listed in Section 4.6.

4.3.2 Subsurface Soil Sampling

Subsurface soil samples will be collected from eleven soil borings installed at the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7).

4.3.2.1 Sample Locations and Rationale

Subsurface soil samples will be collected from the eleven soil borings proposed on Figure 4-1. The subsurface soil sampling rationale is presented in Table 4-1. Subsurface soil sample designations, depths, and required QA/QC sample quantities are listed in Table 4-2. The exact soil boring sampling locations will be determined in the field by the on-site geologist based on actual field observations and the results of the geophysical survey.



LEGEND

UNIMPROVED ROADS AND PARKING

PAVED ROADS AND PARKING

BUILDING

TOPOGRAPHIC CONTOURS

TREES / TREELINE

PARCEL BOUNDARY

EXTENT OF PROPOSED GEOPHYSICAL SURVEY

BRIDGE

CULVERT WITH HEADWALL

SURFACE DRAINAGE / CREEK

MANMADE SURFACE DRAINAGE FEATURE

SANITARY SEWER LINE

STORM DRAINAGE LINE

PROPOSED SURFACE SOIL SAMPLE

PROPOSED SUBSURFACE SOIL SAMPLE

PROPOSED GROUNDWATER AND SUBSURFACE SOIL SAMPLE

PROPOSED DEPOSITIONAL SOIL SAMPLE

FIGURE 4-1

PROPOSED SAMPLE LOCATIONS

FORMER MOTOR POOL AREA 1000

PARCELS 150(7), 139(7), AND 13(7)

U. S. ARMY CORPS OF ENGINEERS

MOBILE DISTRICT

FORT McCLELLAN

CALHOUN COUNTY, ALABAMA

Contract No. DACA21-96-D-0018

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Table 4-1

Sample Locations And Rationale
Former Motor Pool Area 1000
Parcels 150(7), 13(7), and 139(7)
Fort McClellan, Calhoun County, Alabama

Sample Location	Sample Media ^a	Sample Location Rationale
PPMP-150-GP01	Subsurface soil and groundwater	Soil boring for subsurface soil sample and one direct-push temporary well to be placed in an area downgradient of the former motor pool area and the likely location of gas station area to determine if potential site-specific chemicals (PSSCs) have migrated from the potential source areas.
PPMP-150-GP02	Subsurface soil and groundwater	Soil boring for subsurface soil sample and one direct-push temporary well to be placed in an area downgradient of the former motor pool area and the likely location of gas station area to determine if PSSCs have migrated from the potential source areas.
PPMP-150-GP03	Subsurface soil and groundwater	Soil boring for subsurface soil sample and one direct-push temporary well to be placed in an area downgradient of the former motor pool area to determine if PSSCs have migrated from the potential source areas.
PPMP-150-GP04	Subsurface soil and groundwater	Soil boring for subsurface soil sample and one direct-push temporary well to be placed in an area of the former motor pool area to determine if PSSCs are present.
PPMP-150-GP05	Subsurface soil and groundwater	Soil boring for subsurface soil sample and one direct-push temporary well to be placed in the location of the former motor pool area to determine presence or absence of PSSCs from historic activities.
PPMP-150-GP06	Subsurface soil and groundwater	Soil boring for subsurface soil sample and one direct-push temporary well to be placed in the location of the former gas station area to determine presence or absence of PSSCs from historic activities.
PPMP-150-GP07	Subsurface soil and groundwater	Soil boring for subsurface soil sample and one direct-push temporary well to be placed in an area downgradient and north of the former motor pool and likely gas station area to determine if PSSCs have migrated from the source areas.
PPMP-150-GP08	Subsurface soil	Soil boring for subsurface soil sample collected at the bottom level of the UST to be placed in the downgradient vicinity of the existing heating oil UST. Sample data will indicate if the UST has leaked or if contaminated soil exists.
PPMP-150-GP09	Subsurface soil	Soil boring for subsurface soil sample collected at the bottom level of the UST to be placed in the downgradient vicinity of the existing heating oil UST. Sample data will indicate if the UST has leaked or if contaminated soil exists.
PPMP-150-GP10	Subsurface soil	Soil boring for subsurface soil sample collected downgradient of the probable UST excavation near the southeast corner of Building 1012. Sample data will indicate if the probable removed UST had leaked or if contaminated soil exists.
PPMP-150-GP11	Subsurface Soil	Soil boring for subsurface soil sample collected at the northwest end of Building 1012 near area of suspected former gas station site. Sample data will indicate the presence or absence of PSSC.
PPMP-150-GP12	Surface Soil	Soil boring for subsurface soil sample collected at the northwest end of Building 1012 near area of suspected former gas station site. Sample data will indicate the presence or absence of PSSC.
PPMP-150-DEP01	Depositional Soil	Sample location represents a low elevation where surface water could collect and potentially percolate into the substratum or deposit suspended or dissolved materials after evaporation.
PPMP-150-DEP02	Depositional Soil	Sample location represents a low elevation where surface water could collect and potentially percolate into the substratum or deposit suspended or dissolved materials after evaporation.

^a Only one surface soil sample is proposed because this site was leveled and Truman Gymnasium was built in 1977 and it appears the original surface soil no longer remains.

Table 4-2

Surface Soil, Subsurface Soil, and Depositional Soil Sample Designations and QA/QC Sample Quantities
Former Motor Pool Area 1000
Parcels 150(7), 13(7), and 139(7)
Fort McClellan, Calhoun County, Alabama

Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
PPMP-150-GP01	PPMP-150-GP01-DS-KM0001-REG	a				TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP02	PPMP-150-GP02-DS-KM0002-REG	a	PPMP-150-GP02-DS-KM0003-FD	PPMP-150-GP02-DS-KM0004-FS		TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP03	PPMP-150-GP03-DS-KM0005-REG	a				TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP04	PPMP-150-GP04-DS-KM0006-REG	a				TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP05	PPMP-150-GP05-DS-KM0007-REG	a				TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP06	PPMP-150-GP06-DS-KM0008-REG	a				TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP07	PPMP-150-GP07-DS-KM0009-REG	a			PPMP-150-GP07-DS-KM0009-MS PPMP-150-GP07-DS-KM0009-MSD	TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP08	PPMP-150-GP08-DS-KM0010-REG	b				TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP09	PPMP-150-GP09-DS-KM0011-REG	b				TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP10	PPMP-150-GP10-DS-KM0012-REG	a				TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP11	PPMP-150-GP11-DS-KM0013-REG	a				TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP12	PPMP-150-GP12-DS-KM0014-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-DEP01	PPMP-150-DEP01-DEP-KM0015-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-DEP02	PPMP-150-DEP02-DEP-KM0016-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals

* Actual sample depth selected for analysis will be at the discretion of the site geologist and will be based on field observation.

* Sample depth will be at the estimated depth of the bottom of UST.

QA/QC - Quality assurance/quality control.
VOC - Volatile organic compound.
SVOC - Semivolatile organic compound.
TAL - Target analyte list.
TCL - Target compound list.

REG - Field sample.
FD - Field duplicate.
FS - Field split.
MS/MSD - Matrix spike/matrix spike duplicate.

4.3.2.2 Sample Collection

Subsurface soil samples will be collected from soil borings at a depth greater than 1 foot bgs in the unsaturated zone. The soil borings will be advanced and soil samples collected using the direct-push sampling procedures specified in Section 4.7.1.1 of the SAP (IT, 1998a).

Soil samples will be collected continuously for the first 12 feet or until either groundwater or refusal is reached. A detailed lithological log will be recorded by the on-site geologist for each borehole. At least one subsurface sample from each borehole will be selected for analyses. The collected subsurface soil samples will be field-screened using a photoionization detector (PID) in accordance with Section 4.15 of the SAP to measure samples exhibiting elevated readings above background. Typically, the subsurface soil sample showing the highest reading will be selected and sent to the laboratory for analysis. If none of the samples indicate readings above background (ambient air) using the PID, the deepest interval from the soil boring will be sampled and submitted to the laboratory for analyses. Subsurface soil samples will be selected for analyses from any depth interval if the on-site geologist suspects PSSC at the interval. Site conditions such as lithology may also determine the actual sample depth interval submitted for analyses. More than one subsurface soil sample will be collected if field measurements and observations indicate a possible layer of PSSC and/or additional sample data would provide insight to the existence of any PSSC.

Sample documentation and chain of custody will be recorded as specified in Section 4.13 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1 of the QAP. The samples will be analyzed for the parameters listed in Section 4.6 of this SFSP.

4.3.3 Groundwater Sampling

Groundwater samples will be collected from direct-push temporary wells completed in seven of the eleven soil borings installed at the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7).

4.3.3.1 Sample Locations and Rationale

Groundwater samples will be collected from direct-push temporary wells completed in soil borings installed at the site. Groundwater samples will be collected from the locations shown on Figure 4-1. The groundwater sampling rationale is listed in Table 4-1. The groundwater sample designations, depths, and required QA/QC sample quantities are listed in Table 4-3. The exact

Table 4-3

Groundwater Sample Designations and QA/QC Sample Quantities
Former Motor Pool Area 1000
Parcels 150(7), 13(7), and 139(7)
Fort McClellan, Calhoun County, Alabama

Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
PPMP-150-GP01	PPMP-150-GP01-GW-KM3001-REG	a				TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP02	PPMP-150-GP02-GW-KM3002-REG	a				TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP03	PPMP-150-GP03-GW-KM3003-REG	a				TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP04	PPMP-150-GP04-GW-KM3004-REG	a	PPMP-150-GP04-GW-KM3005-FD	PPMP-150-GP04-GW-KM3006-FS		TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP05	PPMP-150-GP05-GW-KM3007-REG	a				TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP06	PPMP-150-GP06-GW-KM3008-REG	a				TCL VOCs, TCL SVOCs, TAL Metals
PPMP-150-GP07	PPMP-150-GP07-GW-KM3009-REG	a			PPMP-150-GP07-GW-KM3009-MS PPMP-150-GP07-GW-KM3009-MSD	TCL VOCs, TCL SVOCs, TAL Metals

* Sample depth will depend on where sufficient first water is encountered to collect a water sample.

QA/QC - Quality assurance/quality control.

VOC - Volatile organic compound.

SVOC - Semivolatile organic compound.

TAL - Target analyte list.

TCL - Target compound list.

REG - Field sample.

FD - Field duplicate.

FS - Field split.

MS/MSD - Matrix spike/matrix spike duplicate.

sampling locations will be determined in the field by the on-site geologist based on actual field conditions and the results of the geophysical survey.

4.3.3.2 Sample Collection

Groundwater samples will be collected in accordance with the procedures and methods specified in Section 4.7.1.1 of the SAP (IT, 1998a). Direct-push temporary wells will be completed in soil borings installed into the water table (to a depth where sufficient water is encountered) to collect a groundwater sample.

At direct-push temporary well locations, where either refusal is reached before encountering water or direct-push temporary wells do not yield sufficient groundwater for laboratory analysis, conventional drilling methods will be utilized to install temporary monitoring wells. Temporary monitoring wells will be completed as specified in the addendum to Appendix C of the SAP, Section C.5.7 (IT, 1998c).

Sample documentation and chain of custody will be recorded as specified in Section 4.13 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1 of the QAP. The samples will be analyzed for the parameters listed in Section 4.6 of this SFSP.

4.3.4 Depositional Soil Sampling

Two depositional soil samples will be collected from the Former Motor Pool Area 1000 site.

4.3.4.1 Sample Locations and Rationale

The sampling rationale is listed in Table 4-1 and the proposed sampling locations are shown on Figure 4-1. The depositional soil sample designations, depth, and required QA/QC sample quantities are listed in Table 4-2. The actual depositional soil sample points will be at the discretion of the ecological sampler based on the physical characteristics of the drainage area and actual field observations.

4.3.4.2 Sample Collection

Depositional soil sample collection will be conducted in accordance with the procedures for surface soil sample collection specified in Section 4.9.1.1 of the SAP. Sample documentation and COC will be recorded as specified in Section 4.13 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in the SFSP are listed in

Section 5.0, Table 5-1 of the QAP. The samples will be analyzed for the parameters listed in Section 4.6.

4.4 Decontamination Requirements

Decontamination will be performed on sampling and nonsampling equipment to prevent cross-contamination between sampling locations. Decontamination of sampling equipment will be performed in accordance with the requirements presented in Section 4.10.1.1 of the SAP.

Decontamination of nonsampling equipment will be performed in accordance with the requirements presented in Section 4.10.1.2 of the SAP.

4.5 Surveying of Sample Locations

Sampling locations will be marked with pin flags, stakes, and/or flagging and will be surveyed using either GPS or conventional civil survey techniques, as necessary, to obtain the required level of accuracy. Horizontal coordinates will be referenced to the Alabama State Plane Coordinate System, 1983 North American Datum (NAD83). Elevations will be referenced to the National Geodetic Vertical Datum of 1929 or the North American Vertical Datum of 1988 (soon to be established on site).

Horizontal coordinates for all soil, sediment, and surface water locations will be recorded using a GPS to provide accuracy within 1 meter. Because of the need to use temporary wells to determine water levels, a higher level of accuracy is required. Temporary wells will be surveyed to an accuracy of 0.1 foot for horizontal coordinates and 0.01 foot for elevations, using survey-grade GPS techniques and/or conventional civil survey techniques, as required.

Procedures to be used for GPS surveying are described in Section 4.3 of the SAP. Conventional land survey requirements are presented in Section 4.19 of the SAP.

4.6 Analytical Program

Samples collected at locations specified in this chapter will be analyzed for the specific suites of chemicals and elements based on the history of site usage, as well as the EPA, ADEM, FTMC, and USACE requirements. Target analyses for samples collected from the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7) consist of the following list of analytical suites:

- Target Compound List Volatile Organic Compounds - Method 5035/8260B
- Target Compound List Semivolatile Organic Compounds - Method 8270C
- Target Analyte List Metals - Method 6010B/7000.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Table 4-4 in this SFSP and Table 6-1 in the QAP. Data will be reported and evaluated in accordance with CESAS Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). Chemical data will be reported via hard copy data packages by the laboratory using CLP-like forms. These packages will be validated in accordance with EPA National Functional Guidelines by Level III criteria.

4.7 Sample Preservation, Packaging, and Shipping

Sample preservation, packaging, and shipping will follow the procedures as specified in Section 4.13.2 of the SAP. Completed analysis request/chain-of-custody records will be secured and included with each shipment of coolers to the following subcontract laboratory:

Sample Receiving
Quanterra Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
Telephone: (423) 588-6401.

Split samples collected for the USACE laboratory will be shipped to the following address:

USACE South Atlantic Division Laboratory
Attn: Sample Receiving
611 South Cobb Drive
Marietta, Georgia 30060
Telephone: (770) 919-5270.

4.8 Investigation-Derived Waste Management

Management and disposal of the investigation-derived wastes (IDW) will follow procedures and requirements as described in Appendix D of the SAP. The IDW expected to be generated at the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7) will include decontamination fluids and disposable personal protective equipment. The IDW will be staged in the fenced area surrounding Buildings 335 and 336 while awaiting final disposal.

4.9 Site-Specific Safety and Health

Safety and health requirements for this SI are provided in the SSHP attachment for the Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7). The SSHP attachment will be used in conjunction with the SHP.

Table 4-4

**Analytical Samples
Site Investigation
Former Motor Pool Area 1000, Parcels 150(7), 13(7), and 139(7)
Fort McClellan, Calhoun County, Alabama**

Parameters	Analysis Method	Sample Matrix	TAT Needed	Field Samples			QA/QC Samples ^a					Quanterra	QA Lab
				No. of Sample Points	No. of Events	No. of Field Samples	Field Dups (10%)	Splits w/ QA Lab (5%)	MS/MSD (5%)	Trip Blank (1/ship)	Eq. Rinse (1/wk/matrix)	Total No. Analysis	Total No. Analysis
Former Motor Poll Area 1000: 7 water matrix samples (7 groundwater samples);14 soil matrix samples (1 surface soil sample, 11 subsurface soil samples, and 2 depositional soil samples)													
TCL VOCs	8260B	water	normal	7	1	7	1	1	1	2	1	13	1
TCL SVOCs	8270C	water	normal	7	1	7	1	1	1		1	11	1
Tot TAL Metals	6010B/7000	water	normal	7	1	7	1	1	1		1	11	1
TCL VOCs	8260B	soil	normal	14	1	14	1	1	1		1	18	1
TCL SVOCs	8270C	soil	normal	14	1	14	1	1	1		1	18	1
TAL Metals	6010B/7000	soil	normal	14	1	14	1	1	1		1	18	1
Former Motor Poll Area 1000 Subtotal:				63			6	6	6	2	6	89	6

^aField duplicate, QA split, and MS/MSD samples were calculated as a percentage of the field samples collected per site and were rounded to the nearest whole number. Trip blank samples will be collected in association with water matrix samples for VOC analysis only. Assumed four field samples per day to estimate trip blanks. Equipment blanks will be collected once per event whenever sampling equipment is field decontaminated and re-used. They will be repeated weekly for sampling events that are anticipated to last more than 1 week. Assumed 20 field samples will be collected per week to estimate number of equipment blanks.

Ship samples to:

Quanterra Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
Attn: John Reynolds
Tel: 423-588-6401
Fax: 423-584-4315

USACE Laboratory split samples are shipped to:

USACE South Atlantic Division Laboratory
Attn: Sample Receiving
611 South Cobb Drive
Marietta, Georgia 30060-3112
Tel: 770-919-5270

QA/QC - Quality assurance/quality control.
MS/MSD - Matrix spike/matrix spike duplicate.
VOC - Volatile organic compound.
SVOC - Semivolatile organic compound.
TAL - Target analyte list.
TCL - Target compound list.

5.0 Project Schedule

The project schedule for the SI activities is provided by the IT project manager to the Base Realignment and Closure Cleanup Team on a monthly basis.

6.0 References

Environmental Science and Engineering Inc. (ESE), 1998, *Final Environmental Baseline Survey, Fort McClellan, Alabama*, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

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U.S. Department of Agriculture (USDA), 1961, *Soil Survey, Calhoun County, Alabama*, USDA Soil Conservation Service in cooperation with Alabama Department of Agriculture and Industries, Alabama Agricultural Experiment Station, Series 1958, No.9, September.

U.S. Environmental Protection Agency (EPA), 1993, *Data Quality Objectives Process for Superfund, Interim Final Guidance*, EPA 540-R-93-071, September.

U.S. Environmental Protection Agency (EPA), 1990, *Installation Assessment, Army Closure Program, Fort McClellan, Anniston, Alabama (TS-PIC-89334)*, Environmental Photographic Interpretation Center (EPIC), Environmental Monitoring Systems Laboratory.